HOW NOT TO WIN FRIENDS BUT INFLUENCE PEOPLE: AN INVESTIGATION INTO INTERPERSONAL STYLE AMONGST VIOLENT OFFENDER POPULATIONS

Emily Glorney

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Department of Psychology
School of Human Sciences
University of Surrey
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Abstract

Interpersonal violence is a persistent social problem which continues to present a challenge to service providers to develop treatment to target offenders' needs and to reduce recidivism. By exploring how an individual's characteristic interpersonal style relates to offending behaviour we can begin to understand more about the motivations and functions of violent behaviour. Employing a correlational design, this thesis applied an interpersonal theoretical framework to interpersonally violent behaviour, explored the relationship between trait aggressiveness and state violence, and explored differences in interpersonal style amongst groups of violent offenders and non-offenders.

Three samples of British males were generated (336 non-offenders, 120 prisoners with convictions for violent offences, 56 mentally disordered violent offenders), all of whom completed a series of self-report questionnaires; Inventory of Interpersonal Problems-Circumplex Scales (IIP-C), Aggression Questionnaire (AQ), General Perceived Self-Efficacy, Inventory of Interpersonal Reactivity Index, Psychological Estrangement. Using the IIP-C, a circumplex structure was generated within which to explore differences in interpersonal style between groups and to locate violent behaviour. Offender groups reported the highest levels of interpersonal problems on the 'Vindictive/Self-Centred' and 'Cold/Distant' IIP-C scales, and 'Physical aggression' and 'Hostility' scales of the AQ. Three IIP-C scales discriminated between groups of offenders with differing histories of interpersonally violent offences, indicative of some level of homogeneity of interpersonal style within offence-related groups. Exploration of the inter-relationships between the IIP-C and the AQ indicated that aggressive behaviour serves an implicit communicative function, related to a range of interpersonal styles.

Results indicate that the Interpersonal Circumplex is a useful model for contributing to our understanding of interpersonally violent behaviour. Furthermore, the self-reported higher levels of both trait aggression and specific interpersonal problems amongst some violent offenders suggest that a focus on interpersonal style in conjunction with criminogenic need might be a complementary approach to the treatment of violent offenders.
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# Table of contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>i</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>ii</td>
</tr>
<tr>
<td>Table of contents</td>
<td>iv</td>
</tr>
<tr>
<td>Index of Figures</td>
<td>xvi</td>
</tr>
<tr>
<td>Index of Tables</td>
<td>xxiii</td>
</tr>
<tr>
<td>Chapter 1 – Introduction</td>
<td>1</td>
</tr>
<tr>
<td>1.1. Some of the things that we think we know about violence</td>
<td>2</td>
</tr>
<tr>
<td>1.2. Some of the things that we think we know about violent offenders</td>
<td>3</td>
</tr>
<tr>
<td>1.3. A brief note about the interpersonal theoretical framework</td>
<td>4</td>
</tr>
<tr>
<td>1.4. About this thesis</td>
<td>4</td>
</tr>
<tr>
<td>1.5. Overview of this thesis</td>
<td>5</td>
</tr>
<tr>
<td>Chapter 2 – Violence as an interpersonal behaviour</td>
<td>8</td>
</tr>
<tr>
<td>2.1. Defining interpersonal violence</td>
<td>8</td>
</tr>
<tr>
<td>2.1.1. Definitional difficulties</td>
<td>8</td>
</tr>
<tr>
<td>2.1.2. Violence or aggression?</td>
<td>10</td>
</tr>
<tr>
<td>2.1.3. Instrumental or expressive aggression/violence?</td>
<td>12</td>
</tr>
<tr>
<td>2.1.4. Is four better than two? Shye's action systems model</td>
<td>14</td>
</tr>
<tr>
<td>2.2. Chapter summary</td>
<td>14</td>
</tr>
<tr>
<td>Chapter 3 – Individual differences and violence</td>
<td>16</td>
</tr>
<tr>
<td>3.1. Theoretical contributions towards understanding individual differences in violent behaviour</td>
<td>16</td>
</tr>
<tr>
<td>3.1.1. Biological perspectives</td>
<td>16</td>
</tr>
<tr>
<td>3.1.1.1. Animal studies</td>
<td>16</td>
</tr>
<tr>
<td>3.1.1.2. Serotonin</td>
<td>18</td>
</tr>
<tr>
<td>3.1.1.3. Testosterone</td>
<td>20</td>
</tr>
<tr>
<td>3.1.1.4. Brain dysfunction</td>
<td>22</td>
</tr>
<tr>
<td>3.1.1.5. Genetic basis</td>
<td>23</td>
</tr>
<tr>
<td>3.1.1.6. Mental disorder</td>
<td>26</td>
</tr>
<tr>
<td>3.1.1.7. Summary</td>
<td>30</td>
</tr>
<tr>
<td>3.1.2. Evolutionary perspectives</td>
<td>31</td>
</tr>
<tr>
<td>3.1.3. Social learning perspectives</td>
<td>33</td>
</tr>
<tr>
<td>3.1.3.1. Reinforcement</td>
<td>33</td>
</tr>
<tr>
<td>3.1.3.2. Modelling</td>
<td>35</td>
</tr>
<tr>
<td>3.1.4. Cognitive neoassociationism</td>
<td>39</td>
</tr>
</tbody>
</table>
3.1.5. Social cognitive perspectives ......................................................... 41
3.1.6. Social interactionist perspective .................................................... 41
3.1.7. Developmental perspective ........................................................... 43
3.1.7.1. Experience of physical abuse ...................................................... 44
3.1.7.2. Experience of psychological and emotional abuse ................... 45
3.1.7.3. Peer association and rejection ................................................... 46
3.1.7.4. Summary .................................................................................. 46
3.1.8. The General Affective Aggression Model ....................................... 47
3.1.9. Summary of theoretical contributions towards understanding individual differences in violent behaviour ........................................ 50

3.2. Specific individual difference factors related to aggression and violence .......................................................... 51
3.2.1. Self-efficacy ................................................................................... 52
3.2.2. Anger ............................................................................................ 53
3.2.3. Empathy ........................................................................................ 55
3.2.4. Hostile attributional bias ............................................................... 58
3.2.5. Summary of specific individual difference factors related to aggression and violence ............................................. 60

3.3. Typological approaches to personality, aggression and violence ... 61
3.3.1. Undercontrolled and overcontrolled aggressors .............................. 61
3.3.2. Toch's typology of motivational concerns ..................................... 64
3.3.2.1. Self-preserving strategies ......................................................... 65
3.3.2.2. Approaches that de-humanise others ........................................ 65
3.3.2.3. Summary .................................................................................. 66
3.3.3. Summary of typological approaches to personality, aggression and violence ......................................................... 67

3.4. A dimensional approach to personality and violence – the Five Factor Model .......................................................... 67
3.4.1. Personality disorder and violence ................................................ 69
3.4.2. Psychopathy .................................................................................. 70
3.4.3. Psychopathy and violence ............................................................. 71
3.4.4. Summary of the Five Factor Model approach to personality and violence ......................................................... 72

3.5. An interpersonal theoretical approach to understanding aggressive and violent behaviour ........................................ 72
3.5.1. Interpersonal theory ....................................................................... 73
3.5.2. Agency and communion ................................................................. 76
3.5.3. The interpersonal circumplex .......................................................... 77
3.5.4. Application of the circumplex model to interpersonal theory ......... 79
3.5.5. Interpersonal space ...................................................................... 82
3.5.6. Application of the interpersonal circumplex to other conceptual spaces ................................................................. 83
3.5.7. The interpersonal circumplex and personality disorder ............... 83
3.5.8. The interpersonal circumplex and violence ..................................... 84
3.5.9. Summary of an interpersonal theoretical approach to understanding aggressive and violent behaviour ......................................................... 87
3.6. Chapter summary ............................................................................. 88

Chapter 4 – Aims of and rationale for empirical work presented in this thesis ..................................................................................................................... 90

4.1. Sample considerations ....................................................................... 92
4.2. Methodological considerations .......................................................... 95
4.3. Overview of the empirical chapters of this thesis .............................. 97

Chapter 5 – Methodology and preliminary analyses ..................................... 98

5.1. Background ....................................................................................... 98
5.2. Overview of Chapter 5 ....................................................................... 99
5.3. Method ............................................................................................... 99

5.3.1. Design ............................................................................................ 99
5.3.2. Samples .......................................................................................... 99
5.3.2.1. Non-offending volunteers .......................................................... 100
5.3.2.2. Prisoners resident within Her Majesty’s Prison Service ... 103
5.3.2.3. Patients within a high security hospital .................................... 104

5.3.3. Measures ....................................................................................... 106

5.3.3.1. The Inventory of Interpersonal Problems – Circumplex Scales .................................................................................. 106
5.3.3.2. The Aggression Questionnaire .................................................. 108
5.3.3.3. General Perceived Self-efficacy questionnaire ......................... 110
5.3.3.4. Psychological Estrangement questionnaire ......................... 110
5.3.3.5. The Interpersonal Reactivity Index ............................................ 111

5.3.4. Procedure ....................................................................................... 112

5.3.4.1. Non-offending volunteers .......................................................... 112
5.3.4.2. Prisoners resident within Her Majesty’s Prison Service ... 113
5.3.4.3. Patients at a high security hospital ........................................... 113
5.3.5. Overview of analyses ................................................................. 114

5.4. Structural and reliability analyses of the measures .................. 114

5.4.1. Inventory of Interpersonal Problems – Circumplex Scales .... 114

5.4.1.1. Non-offending volunteer sample ............................................. 114

5.4.1.1.1. Structural exploration of the Inventory of Interpersonal
Problems-Circumplex Scales .................................................... 115

5.4.1.1.2. Reliability of the Inventory of Interpersonal Problems-
Circumplex Scales .................................................................. 117

5.4.1.2. HM Prison sample ............................................................. 118

5.4.1.2.1. Structural exploration of the Inventory of Interpersonal
Problems-Circumplex Scales .................................................... 118

5.4.1.2.2. Reliability of the Inventory of Interpersonal Problems-
Circumplex Scales .................................................................. 120

5.4.1.3. Broadmoor sample ............................................................. 121

5.4.1.3.1. Structural exploration of the Inventory of Interpersonal
Problems-Circumplex Scales .................................................... 121

5.4.1.3.2. Reliability of the Inventory of Interpersonal Problems-
Circumplex Scales .................................................................. 124

5.4.2. Aggression Questionnaire ....................................................... 124

5.4.2.1. Non-offending volunteer sample ............................................. 124

5.4.2.1.1. Structural exploration of the Aggression Questionnaire .... 125

5.4.2.1.2. Reliability of the Aggression Questionnaire scales ......... 127

5.4.2.2. HM Prison and Broadmoor samples ................................. 127

5.4.2.2.1. Reliability analyses of the Aggression Questionnaire scales
......................................................................................... 128

5.4.3. General Perceived Self-Efficacy ............................................. 129

5.4.3.1. Non-offending volunteer sample ............................................. 129

5.4.3.1.1. Structural exploration of the General Perceived Self-
Efficacy questionnaire ......................................................... 129

5.4.3.1.2. Reliability of the General Perceived Self-Efficacy
questionnaire ................................................................. 130

5.4.3.2. HM Prison and Broadmoor samples ................................. 130

5.4.3.2.1. Reliability of the General Perceived Self-Efficacy
questionnaire ................................................................. 130

5.4.4. Psychological Estrangement .................................................... 130

5.4.4.1. Non-offending volunteer sample ............................................. 130
5.4.4.1.1. Structural exploration of the Psychological Estrangement questionnaire .................................................. 130
5.4.4.1.2. Reliability of the Psychological Estrangement scales ... 132
5.4.4.2. HM Prison and Broadmoor samples ......................... 133
5.4.4.2.1. Reliability of the Psychological Estrangement scales ... 133
5.4.5. Interpersonal Reactivity Index ............................................................. 134
5.4.5.1. Non-offending volunteer sample................................. 134
5.4.5.1.1. Structural exploration of the Interpersonal Reactivity Index ..................................................................................................................... 134
5.4.5.1.2. Reliability of the Interpersonal Reactivity Index ......... 136
5.4.5.2. HM Prison sample ................................................................. 136
5.4.5.2.1. Reliability of the Interpersonal Reactivity Index ........ 136
5.4.5.3. Broadmoor sample ............................................................... 137
5.4.5.3.1. Reliability of the Interpersonal Reactivity Index ......... 137
5.4.5.4. Summary of reliability analyses for the Interpersonal Reactivity Index ................................................................. 137
5.5. Assessment of homogeneity of the non-offending volunteer sample ............................................................... 138
5.5.1. Between-group differences across scales of the Inventory of Interpersonal Problems-Circumplex Scales ................. 138
5.5.2. Between-group differences across scales of the Aggression Questionnaire ................................................................. 141
5.5.3. Between-group differences on the General Perceived Self-Efficacy questionnaire ................................................................. 143
5.5.4. Between-group differences across scales of the Psychological Estrangement questionnaire ................................................................. 143
5.5.5. Between-group differences across scales of the Interpersonal Reactivity Index ................................................................. 143
5.5.6. Summary of between-groups within-sample tests of difference across scales ................................................................. 145
5.5.7. Between-sample tests for homogeneity of the non-offending volunteer sample ................................................................. 145
5.6. Chapter summary ...................................................................................... 147

Chapter 6 – Interpersonal circumplex space .................................................. 149
6.1. Alms and overview of the chapter .............................................................. 149
6.2. Background to the present study .............................................................. 149
6.3. Assessment of the circumplex structure of the Inventory of Interpersonal Problems – Circumplex Scales ........................................ 152

6.3.1. Structure of the non-offending volunteer space ................. 153

6.3.1.1. Constant radius ......................................................... 154

6.3.1.2. Equal spacing ......................................................... 155

6.3.1.3. Summary ............................................................... 156

6.3.2. Structure of the HM Prison sample interpersonal space ....... 156

6.3.2.1. Constant radius ......................................................... 157

6.3.2.2. Equal spacing ......................................................... 158

6.3.2.3. Summary ............................................................... 158

6.3.3. Structure of the Broadmoor sample interpersonal space ...... 158

6.3.3.1. Constant radius ......................................................... 159

6.3.3.2. Equal spacing ......................................................... 160

6.3.3.3. Summary ............................................................... 160

6.3.4. Summary of analyses of circumplex criteria ....................... 160

6.4. Between-sample tests of difference across scales of the Inventory of Interpersonal Problems – Circumplex Scales ......................... 161

6.4.1. Interpersonal profile location in non-offending volunteer space ... 164

6.4.2. Summary .................................................................. 165

6.5. Between-sample tests of difference across scales of the General Perceived Self-Efficacy, Psychological Estrangement and Interpersonal Reactivity Index questionnaires ......................................... 165

6.5.1. Between-sample tests of difference on scores of the GSE .......... 166

6.5.2. Between-sample tests of difference across scales of the PSE ...... 167

6.5.3. Between-sample tests of difference across scales of the IRI ...... 169

6.5.4. Summary .................................................................. 170

6.6. An assessment of agency and communion ............................... 171

6.6.1. Assessing the relationship between general perceived self-efficacy and interpersonal style ......................................................... 171

6.6.1.1. General self-efficacy and interpersonal style – non-offending volunteer sample ......................................................... 171

6.6.1.2. General self-efficacy and interpersonal style – HM Prison sample .................................................................................. 172

6.6.1.3. General self-efficacy and interpersonal style – Broadmoor sample .................................................................................. 173

6.6.1.4. Summary .................................................................. 174
6.6.2. Assessing the relationship between psychological estrangement and interpersonal style ........................................................................................... 175
  6.6.2.1. Existential estrangement and interpersonal style – non-offending volunteer sample ............................................................... 176
  6.6.2.2. Existential estrangement and interpersonal style – HM Prison sample ...................................................................................... 177
  6.6.2.3. Existential estrangement and interpersonal style – Broadmoor sample ...................................................................................... 179
  6.6.2.4. Social estrangement and interpersonal style – non-offending volunteer sample ............................................................................. 180
  6.6.2.5. Social estrangement and interpersonal style – HM Prison sample .............................................................................................. 181
  6.6.2.6. Social estrangement and interpersonal style – Broadmoor sample .............................................................................................. 182
  6.6.2.7. Summary ...................................................................................... 184

6.6.3. Assessing the relationship between empathic ability and interpersonal style ........................................................................................... 184
  6.6.3.1. Perspective taking and interpersonal style – non-offending volunteer sample ............................................................................. 185
  6.6.3.2. Perspective taking and interpersonal style – HM Prison sample .............................................................................................. 186
  6.6.3.3. Perspective taking and interpersonal style – Broadmoor sample .............................................................................................. 187
  6.6.3.4. Empathic concern and interpersonal style – non-offending volunteer sample ............................................................................. 188
  6.6.3.5. Empathic concern and interpersonal style – HM Prison sample .............................................................................................. 190
  6.6.3.6. Empathic concern and interpersonal style – Broadmoor sample .............................................................................................. 191
  6.6.3.7. Summary ...................................................................................... 192

6.7. Discussion .......................................................................................................... 193
  6.7.1. Interpersonal circumplex structure .......................................................... 193
  6.7.2. Differences in interpersonal style between the non-offending volunteer, HM Prison and Broadmoor samples ........................................... 195
  6.7.3. Interpersonal style as related to measures of agency and communion .............................................................................................. 197
6.7.3.1. Self-efficacy ................................................................. 197
6.7.3.2. Psychological estrangement ........................................ 199
   6.7.3.2.1. Existential estrangement ....................................... 199
   6.7.3.2.2. Social estrangement ............................................. 201
6.7.3.3. Empathic ability ........................................................ 203
   6.7.3.3.1. Perspective taking ............................................... 203
   6.7.3.3.2. Empathic concern ................................................. 205
6.7.4. Summary .......................................................................... 206

Chapter 7 – Interpersonal style and aggression ........................................ 208
7.1. Aims and overview of the chapter ................................................... 208
7.2. Background to the present study ..................................................... 208
7.3. Between-sample test of difference on the Aggression Questionnaire
........................................................................................................... 211
7.4. The relationship between aggression and agency, communion, and
   specific individual difference factors .............................................. 213
   7.4.1. Assessing the relationship between general perceived self-efficacy
   and aggression ........................................................................... 213
   7.4.2. Assessing the relationship between psychological estrangement and
   aggression .................................................................................. 214
       7.4.2.1. Existential estrangement ......................................... 215
       7.4.2.2. Social estrangement .................................................. 215
   7.4.3. Assessing the relationship between empathic ability and aggression
.............................................................................................................. 217
       7.4.3.1. Perspective taking ................................................... 217
       7.4.3.2. Empathic ability ..................................................... 218
7.5. The location of aggression in interpersonal space ............................ 218
   7.5.1. The location of aggression relative to interpersonal space .......... 219
       7.5.1.1. Non-offending volunteer sample .............................. 219
       7.5.1.2. HM Prison sample .................................................. 220
       7.5.1.3. Broadmoor sample .................................................. 222
   7.5.2. The location of aggression relative to interpersonal variables .... 223
       7.5.2.1. Non-offending volunteer sample .............................. 223
       7.5.2.2. HM Prison sample .................................................. 224
       7.5.2.3. Broadmoor sample .................................................. 226
7.5.3. Summary .............................................................................. 227
7.6. Exploring the inter-relationship between aggression and interpersonal style

7.6.1. Canonical correlation analysis with non-offending volunteer sample

7.6.1.1. Summary of canonical correlation analysis with non-offending volunteer sample

7.6.2. Canonical correlation analysis with HM Prison sample

7.6.2.1. Summary of canonical correlation analysis with HM Prison sample

7.6.3. Canonical correlation analysis with Broadmoor sample

7.6.4. Summary of canonical correlation analyses

7.7. Discussion

7.7.1. Differences in self-reported aggression between the non-offending volunteer, HM Prison and Broadmoor samples

7.7.2. Aggression as related to measures of agency, communion, and specific individual difference factors

7.7.2.1. Self-efficacy

7.7.2.2. Psychological estrangement

7.7.2.2.1. Existential estrangement

7.7.2.2.2. Social estrangement

7.7.2.3. Empathic ability

7.7.2.3.1. Perspective taking

7.7.3. The relationship between aggression and interpersonal style

7.7.4. Summary

Chapter 8 – Interpersonal style amongst groups of violent offenders

8.1. Aims and overview of the chapter

8.2. Background to the present study

8.3. Exploring the interpersonal styles of violent offenders

8.3.1. Generation of offence-specific groups

8.3.1.1. Correlations between offence categories – HM Prison sample

8.3.1.2. Correlations between offence categories – Broadmoor sample

8.3.1.3. Summary of offence-related group generation and membership
8.3.2. Differences between offence-related groups across scales of the
Inventory of Interpersonal Problems-Circumplex Scales .............. 257
8.3.2.1. HM Prison offence-related groups ................................. 257
     8.3.2.1.1. Interpersonal profile location in non-offending volunteer
                 sample interpersonal space ....................................... 259
8.3.2.2. Broadmoor offence-related groups .............................. 263
     8.3.2.2.1. Interpersonal profile location in non-offending volunteer
                 sample interpersonal space ....................................... 263
8.3.2.3. Summary ..................................................................... 266
8.3.3. The relationship between interpersonal style and offence categories
........................................................................................................ 267
8.3.4. Interpersonal style as discriminating between offence-related groups
........................................................................................................ 270
     8.3.4.1. HM Prison sample offence-related groups .................. 270
     8.3.4.2. Broadmoor sample offence-related groups .................. 273
8.4. Differences between offence-related groups on measures of agency,
  communion and specific individual difference factors ................ 277
     8.4.1. Self-efficacy .............................................................. 277
             8.4.1.1. Offence-related groups of the HM Prison sample .... 277
             8.4.1.2. Offence-related groups of the Broadmoor sample .... 277
     8.4.2. Psychological estrangement ........................................ 278
             8.4.2.1. Offence-related groups of the HM Prison sample .... 279
             8.4.2.2. Offence-related groups of the Broadmoor sample .... 279
     8.4.3. Empathic ability ....................................................... 279
             8.4.3.1. Offence-related groups of the HM Prison sample .... 279
             8.4.3.2. Offence-related groups of the Broadmoor sample .... 281
8.5. Exploring the relationship between offending behaviour and aggression
........................................................................................................ 281
     8.5.1. The relationship between self-reported aggression and offence
categories .................................................................................... 281
     8.5.2. Differences between offence-related groups across scales of the
            Aggression Questionnaire .................................................. 283
             8.5.2.1. HM Prison sample offence-related groups .............. 284
             8.5.2.2. Broadmoor sample offence-related groups .............. 285
8.6. Discussion ............................................................................. 287
     8.6.1. Interpersonal style amongst violent offenders .................. 287
Appendix 17 – Demographic and forensic checklist for case file data collection among the Broadmoor sample .......................... 386
Appendix 18 – The Inventory of Interpersonal Problems-Circumplex Scales .............................................................................. 388
Appendix 19 – The Aggression Questionnaire ............................................. 394
Appendix 20 – The General Perceived Self-Efficacy questionnaire .......... 397
Appendix 21 – The Psychological Estrangement questionnaire .............. 399
Appendix 22 – The Interpersonal Reactivity Index .................................. 402
Appendix 23 – Non-offending volunteer sample t-scores for the Inventory of Interpersonal Problems-Circumplex Scales ................. 405
Appendix 24 – Non-offending volunteer sample t-scores for the ‘Empathic concern’ and ‘Perspective taking’ scales of the Interpersonal Reactivity Index .............................................................. 407
Appendix 25 – Non-offending volunteer sample t-score for Aggression Questionnaire scales .............................................................. 409
Index of Figures

Figure 3.1 ................................................................. 78
The Interpersonal Circumplex

Figure 3.2 ................................................................. 80
Circumplex bi-polarity within Leary’s model

Figure 3.3 ................................................................. 80
Circumplex bi-polarity within Wiggins’ model

Figure 5.1 ................................................................. 117
Inventory of Interpersonal Problems-Circumplex Scales component plot in varimax-rotated space: non-offending volunteer sample

Figure 5.2 ................................................................. 120
Inventory of Interpersonal Problems-Circumplex Scales component plot in varimax-rotated space: HM Prison sample

Figure 5.3 ................................................................. 123
Inventory of Interpersonal Problems-Circumplex Scales component plot in oblimin-rotated space: Broadmoor sample

Figure 5.4 ................................................................. 140
Mean scale scores and confidence intervals for the two non-offending volunteer sample methods of response on the ‘Vindictive/Self-Centred’ scale of the Inventory of Interpersonal Problems-Circumplex Scales

Figure 5.5 ................................................................. 140
Mean scale scores and confidence intervals for the two non-offending volunteer sample methods of response on the ‘Overly Accommodating’ scale of the Inventory of Interpersonal Problems-Circumplex Scales
Figure 5.6  ....................................................................................................................... 141
Mean scale scores and confidence intervals for the two non-offending volunteer
sample methods of response on the 'Self-sacrificing' scale of the Inventory of
Interpersonal Problems-Circumplex Scales

Figure 5.7  ....................................................................................................................... 142
Mean scale scores and confidence intervals for the two non-offending volunteer
sample methods of response on the 'Verbal aggression' scale of the Aggression
Questionnaire

Figure 5.8  ....................................................................................................................... 144
Mean scale scores for the two non-offending volunteer sample methods of response
across scales of the Interpersonal Reactivity Index

Figure 5.9  ....................................................................................................................... 147
Mean scores for each of the scales of the Interpersonal Reactivity Index across the
non-offending 'on-line' and 'paper version' method-of-completion groups and the two
forensic (HM Prison and Broadmoor) samples

Figure 6.1  ....................................................................................................................... 151
The Interpersonal Circumplex

Figure 6.2  ....................................................................................................................... 153
Inventory of Interpersonal Problems-Circumplex Scales component plot in varimax-
rotated space: non-offending volunteer sample

Figure 6.3  ....................................................................................................................... 154
Formula for Fisher's Test of constant radius

Figure 6.4  ....................................................................................................................... 155
Formula for the Gap Test of equal spacing

Figure 6.5  ....................................................................................................................... 157
Inventory of Interpersonal Problems-Circumplex Scales component plot in varimax-
rotated space: HM Prison sample
Figure 6.6  ................................................................. 159
Inventory of Interpersonal Problems-Circumplex Scales component plot in oblimin-
rotated space: Broadmoor sample

Figure 6.7  ................................................................. 162
Mean scores for the 'Vindictive/Self-Centred' and 'Cold/Distant' scales of the
Inventory of Interpersonal Problems – Circumplex Scales, across the non-offending
volunteer, HM Prison and Broadmoor samples

Figure 6.8  ................................................................. 163
Mean scores for scales of the Inventory of Interpersonal Problems – Circumplex
Scales, for random samples of non-offending volunteers and HM prisoners and the
total Broadmoor sample

Figure 6.9  ................................................................. 164
Inventory of Interpersonal Problems-Circumplex Scales profile for the HM Prison and
Broadmoor samples, relative to the non-offending volunteer sample t-scores

Figure 6.10  ............................................................... 166
Mean scores for the General Self-Efficacy scale across each of the non-offending
volunteer, HM Prison and Broadmoor samples

Figure 6.11  ............................................................... 168
Mean ‘Existential estrangement’ scale scores across each of the non-offending
volunteer, HM Prison and Broadmoor samples

Figure 6.12  ............................................................... 170
Mean ‘Empathic concern’ scale scores across each of the non-offending volunteer,
HM Prison and Broadmoor samples

Figure 6.13  ............................................................... 175
The location of low self-efficacy in interpersonal space, across each of the three non-
offending volunteer, HM Prison and Broadmoor samples
Figure 7.1 Mean scores for the 'Physical aggression' and 'Hostility' scales of the Aggression Questionnaire, for random samples of non-offending volunteers and HM prisoners and the total Broadmoor sample

Figure 7.2 The location of Aggression Questionnaire variables relative to regression factor scores for the 'Dominance-Submission' and 'Coldness-Friendliness' components of the Inventory of Interpersonal Problems-Circumplex Scales: non-offending volunteer sample

Figure 7.3 The location of Aggression Questionnaire variables relative to regression factor scores for the 'Dominance-Submission' and 'Coldness-Friendliness' components of the Inventory of Interpersonal Problems-Circumplex Scales: HM Prison sample

Figure 7.4 The location of Aggression Questionnaire variables relative to regression factor scores for the 'Dominance-Submission' and 'Coldness-Friendliness' components of the Inventory of Interpersonal Problems-Circumplex Scales: Broadmoor sample

Figure 7.5 Two-dimensional Smallest Space Analysis solution of the Inventory of Interpersonal Problems-Circumplex Scales and four Aggression Questionnaire scales: non-offending volunteer sample

Figure 7.6 Two-dimensional Smallest Space Analysis solution of the Inventory of Interpersonal Problems-Circumplex Scales and four Aggression Questionnaire scales: HM Prison sample

Figure 7.7 Two-dimensional Smallest Space Analysis solution of the Inventory of Interpersonal Problems-Circumplex Scales and four Aggression Questionnaire scales: Broadmoor sample
Figure 8.1  254
Inter-relationships between offence categories for the HM Prison sample

Figure 8.2  256
Inter-relationships between offence categories for the Broadmoor sample

Figure 8.3  259
Mean scores for three scales of the Inventory of Interpersonal Problems - Circumplex Scales, for each of the five HM Prison sample offence-related groups

Figure 8.4  260
Inventory of Interpersonal Problems-Circumplex Scales profile for the HM Prison sample 'Non-interpersonal' offence-related group, relative to the non-offending volunteer sample t-scores

Figure 8.5  261
Inventory of Interpersonal Problems-Circumplex Scales profile for the HM Prison sample 'ABH-level' offence-related group, relative to the non-offending volunteer sample t-scores

Figure 8.6  261
Inventory of Interpersonal Problems-Circumplex Scales profile for the HM Prison sample 'GBH-level' offence-related group, relative to the non-offending volunteer sample t-scores

Figure 8.7  262
Inventory of Interpersonal Problems-Circumplex Scales profile for the HM Prison sample 'Murder/manslaughter and non-interpersonal' offence-related group, relative to the non-offending volunteer sample t-scores

Figure 8.8  262
Inventory of Interpersonal Problems-Circumplex Scales profile for the HM Prison sample 'All offences' offence-related group, relative to the non-offending volunteer sample t-scores
Figure 8.9  
Inventory of Interpersonal Problems-Circumplex Scales profile for the Broadmoor sample 'ABH-level' offence-related group, relative to the non-offending volunteer sample t-scores

Figure 8.10  
Inventory of Interpersonal Problems-Circumplex Scales profile for the Broadmoor sample 'GBH-level' offence-related group, relative to the non-offending volunteer sample t-scores

Figure 8.11  
Inventory of Interpersonal Problems-Circumplex Scales profile for the Broadmoor sample 'Murder/manslaughter and non-interpersonal' offence-related group, relative to the non-offending volunteer sample t-scores

Figure 8.12  
Inventory of Interpersonal Problems-Circumplex Scales profile for the Broadmoor sample 'ABH-level and murder/manslaughter' offence-related group, relative to the non-offending volunteer sample t-scores

Figure 8.13  
Inventory of Interpersonal Problems-Circumplex Scales profile for the Broadmoor sample 'All offences' offence-related group, relative to the non-offending volunteer sample t-scores

Figure 8.14  
The location of offence categories relative to the HM Prison sample scores on the Inventory of Interpersonal Problems-Circumplex scales

Figure 8.15  
The location of offence categories relative to the Broadmoor sample scores on the Inventory of Interpersonal Problems-Circumplex scales
Figure 8.16 ................................................................. 271
Plots of five HM Prison sample offence-related group centroids on two discriminant functions derived from the scales of the Inventory of Interpersonal Problems-Circumplex scales

Figure 8.17 ................................................................. 274
Plots of three Broadmoor sample offence-related group centroids on two discriminant functions derived from the scales of the Inventory of Interpersonal Problems-Circumplex scales

Figure 8.18 ................................................................. 276
Mean scores for the Inventory of Interpersonal Problems- Circumplex Scales across three offence-related groups of the Broadmoor sample

Figure 8.19 ................................................................. 278
Mean ranked scores for the General Perceived Self-efficacy scale across the five Broadmoor sample offence-related groups

Figure 8.20 ................................................................. 280
Mean ‘Perspective taking’ scores for the HM Prison sample offence-related groups

Figure 8.21 ................................................................. 285
Mean scores for the ‘Physical aggression’, ‘Verbal aggression’ and ‘Anger’ scales of the Aggression Questionnaire, for each of the five HM Prison sample offence-related groups

Figure 8.22 ................................................................. 286
Mean ranked scores for the ‘Physical aggression’ scale of the Aggression Questionnaire across each of the five Broadmoor offence-related groups
Table 5.1  115
Inventory of Interpersonal Problems – Circumplex Scales component correlation matrix: non-offending volunteer sample

Table 5.2  116
Inventory of Interpersonal Problems – Circumplex Scales structural coefficients and item communalities after principal components analysis varimax rotation of deviation-scores: non-offending volunteer sample

Table 5.3  118
Cronbach’s alpha reliability coefficients for Inventory of Interpersonal Problems-Circumplex Scales: non-offending volunteer sample

Table 5.4  119
Inventory of Interpersonal Problems – Circumplex Scales component correlation matrix: HM Prison sample

Table 5.5  119
Inventory of Interpersonal Problems – Circumplex Scales structural coefficients and item communalities after principal components analysis varimax rotation of deviation-scores: HM Prison sample

Table 5.6  121
Cronbach’s alpha reliability coefficients for Inventory of Interpersonal Problems-Circumplex Scales: HM Prison sample

Table 5.7  122
Inventory of Interpersonal Problems – Circumplex Scales structural coefficients and item communalities after principal components analysis oblimin rotation of raw scale scores: Broadmoor sample
| Table 5.8 | Inventory of Interpersonal Problems – Circumplex Scales structural coefficients and item communalities after principal components analysis oblimin rotation of deviation-scores: Broadmoor sample | 123 |
| Table 5.9 | Cronbach’s alpha reliability coefficients for Inventory of Interpersonal Problems-Circumplex Scales: Broadmoor sample | 124 |
| Table 5.10 | Structural coefficients and item communalities of Aggression Questionnaire items after principal components analysis varimax rotation: non-offending volunteer sample | 126 |
| Table 5.11 | Cronbach’s alpha reliability coefficients, means and standard deviations for the Aggression Questionnaire scales: HM Prison and Broadmoor samples | 128 |
| Table 5.12 | Structural coefficients and communalities of General Perceived Self-Efficacy items after principal components analysis: non-offending volunteer sample | 129 |
| Table 5.13 | Structural coefficients and item communalities of Psychological Estrangement questionnaire items after principal components analysis varimax rotation: non-offending volunteer sample | 131 |
| Table 5.14 | Cronbach’s alpha reliability coefficients, means and standard deviations for the Psychological Estrangement scales: HM Prison and Broadmoor samples | 133 |
| Table 5.15 | Structural coefficients and item communalities of the Interpersonal Reactivity Index items after principal components analysis varimax rotation: non-offending volunteer sample | 135 |
Table 5.16  .............................................................................................................. 138  
Summary of Cronbach's alpha reliability coefficients, means and standard deviations for the Interpersonal Reactivity Index scales: non-offending volunteer, HM Prison and Broadmoor samples

Table 6.1  .................................................................................................................. 155  
Inventory of Interpersonal Problems-Circumplex Scales unrotated structural coefficients after principal components analysis: non-offending volunteer sample

Table 6.2  .................................................................................................................. 158  
Inventory of Interpersonal Problems-Circumplex Scales unrotated structural coefficients after principal components analysis: HM Prison sample

Table 6.3  .................................................................................................................. 160  
Inventory of Interpersonal Problems-Circumplex Scales unrotated structural coefficients after principal components analysis: Broadmoor sample

Table 6.4  .................................................................................................................. 172  
Standard multiple regression of interpersonal variables on general self-efficacy among the non-offending volunteer sample

Table 6.5  .................................................................................................................. 173  
Standard multiple regression of interpersonal variables on general self-efficacy among the HM Prison sample

Table 6.6  .................................................................................................................. 174  
Standard multiple regression of interpersonal variables on general self-efficacy among the Broadmoor sample

Table 6.7  .................................................................................................................. 176  
Standard multiple regression of interpersonal variables on existential estrangement among the non-offending volunteer sample

Table 6.8  .................................................................................................................. 178  
Standard multiple regression of interpersonal variables on existential estrangement among the HM Prison sample
Table 6.9 ................................................................. 179
Standard multiple regression of interpersonal variables on existential estrangement among the Broadmoor sample

Table 6.10 ................................................................. 180
Standard multiple regression of interpersonal variables on social estrangement among the non-offending volunteer sample

Table 6.11 ................................................................. 182
Standard multiple regression of interpersonal variables on social estrangement among the HM Prison sample

Table 6.12 ................................................................. 183
Standard multiple regression of interpersonal variables on social estrangement among the Broadmoor sample

Table 6.13 ................................................................. 185
Standard multiple regression of interpersonal variables on perspective taking among the non-offending volunteer sample

Table 6.14 ................................................................. 187
Standard multiple regression of interpersonal variables on perspective taking among the HM Prison sample

Table 6.15 ................................................................. 188
Standard multiple regression of interpersonal variables on perspective taking among the Broadmoor sample

Table 6.16 ................................................................. 189
Standard multiple regression of interpersonal variables on empathic concern among the non-offending volunteer sample

Table 6.17 ................................................................. 190
Standard multiple regression of interpersonal variables on empathic concern among the HM Prison sample
Table 6.18: Standard multiple regression of interpersonal variables on empathic concern among the Broadmoor sample

Table 7.1: Pearson's product-moment coefficients between four scales of the Aggression Questionnaire and the General Self-Efficacy questionnaire, across each of the non-offending volunteer, HM Prison and Broadmoor samples

Table 7.2: Pearson's product-moment coefficients between four scales of the Aggression Questionnaire and the 'Existential estrangement' and 'Social estrangement' scales, across each of the non-offending volunteer, HM Prison and Broadmoor samples

Table 7.3: Pearson's product-moment coefficients between four scales of the Aggression Questionnaire and the 'Perspective taking' and 'Empathic concern' scales, across each of the non-offending volunteer, HM Prison and Broadmoor samples

Table 7.4: Pearson's product-moment coefficients between four scales of the Aggression Questionnaire and regression factor scores for the 'Dominance-Submission' and 'Coldness-Friendliness' components of the Inventory of Interpersonal Problems-Circumplex Scales: non-offending volunteer sample

Table 7.5: Pearson's product-moment coefficients between four scales of the Aggression Questionnaire and regression factor scores for the 'Dominance-Submission' and 'Coldness-Friendliness' components of the Inventory of Interpersonal Problems-Circumplex Scales: HM Prison sample

Table 7.6: Pearson's product-moment coefficients between four scales of the Aggression Questionnaire and regression factor scores for the 'Dominance-Submission' and 'Coldness-Friendliness' components of the Inventory of Interpersonal Problems-Circumplex Scales: Broadmoor sample
Table 7.7  ................................................................. 230
Correlations, standardised canonical coefficients, canonical correlations, percents of
variance, and redundancies between aggression and interpersonal variables and
their corresponding canonical variates for the non-offending volunteer sample

Table 7.8  ................................................................. 233
Correlations, standardised canonical coefficients, canonical correlations, percents of
variance, and redundancies between aggression and interpersonal variables and
their corresponding canonical variates for the HM Prison sample

Table 7.9  ................................................................. 236
Correlations, standardised canonical coefficients, canonical correlations, percents of
variance, and redundancies between aggression and interpersonal variables and
their corresponding canonical variates for the Broadmoor sample

Table 8.1  ................................................................. 253
Phi correlations between offence categories for the HM Prison sample

Table 8.2  ................................................................. 255
Phi correlations between offence categories for the Broadmoor sample

Table 8.3  ................................................................. 257
Offence-related groups and associated frequencies for the Broadmoor and HM
Prison samples

Table 8.4  ................................................................. 267a
Point biserial correlations between offence categories and scales of the Inventory of
Interpersonal Problems – Circumplex Scales, for each of the HM Prison and
Broadmoor samples

Table 8.5  ................................................................. 272
Results of discriminant function analysis of the Inventory of Interpersonal Problems –
Circumplex scales with the offence-related groups of the HM Prison sample
Table 8.6  ................................................................. 275
Results of discriminant function analysis of the Inventory of Interpersonal Problems-Circumplex Scales with three offence-related groups of the Broadmoor sample

Table 8.7  ................................................................. 282
Point biserial correlations between offence categories and scales of the Aggression Questionnaire, for each of the HM Prison and Broadmoor samples
CHAPTER 1

Introduction

Violence is a form of interpersonal behaviour that has its roots in social, biological and cognitive processes. Society is increasingly concerned with the perpetration of violent acts and this persistent social problem presents a challenge to service providers and policy makers to target the needs of violent offenders and to reduce recidivism. According to the British Crime Survey 2004/05 (BCS), an estimated 2,412,000 violent incidents against adults in England and Wales were committed during that one-year period alone. Just over a third of these incidents were perpetrated by strangers, another third by acquaintances, and 17% within the home. The number of violent crimes recorded by the police in the same time period was 1,184,702, of which 87% were classed as violence against the person. This was an increase of 8% on 2003/04 due, in part, to the increase in the proportion of BCS violent incidents being reported to the police. Of these 1,035,046 offences against the person, 490,507 (41%) were "less serious woundings" and 19,425 (1.6%) were "more serious woundings" (Coleman et al., 2005; p.74). The higher frequency of violent crimes against the person being reported to the police and the more proactive policing of violent problems (Coleman et al., 2005), means that the Prison and Probation Services and mental health care providers are continually presented with a 'revolving door' situation with violent offenders.

Given the prevalence of violence against the person, it would be prudent to focus on understanding the needs of interpersonally violent offenders and the reasons why some people use violence. One way in which we can begin to understand the use of violent behaviour in interpersonal situations is by investigating how violent offenders interact with other people. By exploring how an individual's characteristic interpersonal style relates to violent offending behaviour we can begin to understand more about the motivations and functions of violence.

The research literature on violence is vast. A range of theories which reflect inherent assumptions about aggression and violence have been put forward to address the issue of why people use aggressive and violent behaviour to varying degrees. The expanse of knowledge about violence which already exists reflects a number of
factors. Firstly, violent behaviour is multifaceted and contributions have been made to the understanding of this across a number of disciplines. For example, anthropology, medicine and psychology are just some of the disciplines which have contributed in different ways towards the knowledge base in this area. Secondly, violence is a social problem. Therefore, our knowledge and understanding of such changes dynamically, as do our cultural expectations of permissible behaviours within a social context. Together, these factors highlight the complexity of violence. A third factor which contributes to a broad knowledge base of violence is our need to understand, simplify and manage our perceptions of the phenomenon. This is particularly relevant to service providers for violent offenders who need knowledge relevant to their client group and treatment ethos. As such, the complexity and heterogeneity of violence and violent offenders perpetuates a need for further understanding of the phenomenon. Therefore, all of the answers to all of the questions about violence are not already out there. This thesis aims to contribute towards the knowledge base about violence, consider the role of context in interpersonally violent behaviour and provide a framework within which our understanding about violence can be managed. Furthermore, this thesis aims to be mindful of the individual within such an understanding.

1.1. Some of the things that we think we know about violence

Biological correlates of violence include biochemical factors (e.g. Dolan, Anderson and Deakin, 2001; Stanley, Molcho, Stanley, Winchel, Gameroff, Parsons and Mann, 2000), neurological factors (e.g. Hoptman, 2003; Miller, 1999a) and cognitive impairment (e.g. Robertson, Taylor and Gunn, 1987), many of which apply to mentally disordered offenders in particular. The evolutionary perspective of violence considers it as an adaptive behaviour (e.g. Buss, 1999; Daly and Wilson, 1995) and places more emphasis on some of the 'good reasons' (from the perpetrator's perspective) for using violence within specific contexts. As such, we also think that we know something about motivations to use violence and what the functions of this might be for the perpetrator. For example, some people might use violence to escape an aversive stimulus (e.g. Patterson, Littman and Bricker, 1967), whereas others might use violent behaviour to gain a reward (e.g. Parke, Ewall and Siaby, 1972). Some people might use violent behaviour as a method of coercion, to influence those around them (Tedeschi and Felson, 1994). We also know that people evaluate their social context in a number of ways and process information about the world in different ways (e.g. Bennett, Farrington and Huesmann, 2005). Therefore, we think
that context is important in an understanding of violent behaviour, both in terms of the context within which the behaviour occurs and also in relation to context as a trigger for violence (e.g. Berkowitz, 1989; 1993). This evaluation process is also important in relation to beliefs about one's ability to use violence 'effectively' (e.g. Bandura, 1977; 1997) in different situations. Such beliefs might be generated from an experiential base of how violence has 'worked' previously. This might be related to developmental risk factors and individual differences, which we think increase the likelihood of aggressive and violent behaviour (e.g. Farrington, 1987; Miller-Perrin and Perrin, 1999). Generally, we think that violent behaviour is a blend of cognitions, emotions, arousal, situational and individual difference factors (e.g. Lindsay and Anderson, 2000). These factors will be discussed further in Chapter 3.

1.2. Some of the things that we think we know about violent offenders

We know that violent offenders are a heterogeneous group. We also know that there are more men than women in prisons and that, therefore, a higher relative proportion of violent crime is perpetrated by men. We think that we know that the experience of anger is an important antecedent to aggressive and violent behaviour for some people (e.g. Novaco, 1994; Zillmann, 1979) and that some offenders are typically more 'angry' than others. We also think that offenders who characteristically attribute hostility to others' intentions are more likely than not to retaliate with hostility and violence in interactions with others (e.g. Dill, Anderson, Anderson and Deuser, 1997; Lindsay and Anderson, 2000). Furthermore, we think that if people generally perceive events and interactions as threatening then they will be more likely to use aggressive and violent behaviour in response (e.g. Lips-Wierma, 2000) and that if some people are generally confident in their use of violence then they might do so to increase self-esteem (e.g. Parke and Slaby, 1983). We also think that offenders have high or low inhibitions against aggressive and violent behaviour (e.g. Megargee, 1966; 1971) and that the expression of violence will differ accordingly. Furthermore, we know that there are a variety of motivations and functions of violent behaviour for the violent offender and we think that some of these might be self-preserving strategies and approaches that de-humanise others (Toch, 1992). Finally, we know that violent offenders differ on a number of individual difference factors and think that there might be certain personality characteristics which are more common to violent offenders than others (e.g. Miller, Lynam and Leukefeld, 2003). These factors will be discussed further in Chapter 3.
Despite this knowledge base about violence and violent offenders, violent behaviour persists and violent offenders continue to present a challenge to the legal system and treatment providers. This highlights the need to apply new models to consolidate and enhance our understanding of violent behaviour.

1.3. A brief note about the interpersonal theoretical framework
One such model which could be applied to facilitate the understanding of violent behaviour is the interpersonal theoretical framework. This is concerned with social behaviour, specifically the way in which an individual deals with and relates to others. This also provides a framework within which hypotheses can be made about the functions of violent behaviour, in relation to interpersonal style. Furthermore, interpersonal theory enables the representation of human interpersonal behaviour within two-dimensional space organised around the axes of Dominance (agency) and Love (communion) at a continuous level. This model is known as the Interpersonal Circumplex and has been demonstrated to locate personality and behavioural variables within the same conceptual space (e.g. Gifford, 1991; Myllyniemi, 1982). As yet, this model has not been applied directly to interpersonally violent behaviour. Research on the indirect association between violence and interpersonal style has suggested that violent offenders might have a characteristic interpersonal style (e.g. Anderson, 2002; Blackburn, 1998a). Given what we think we know about violence and violent offenders, it may be too simplistic to consider that such complex behaviour amongst such a heterogeneous group could be explained in terms of a very specific set of interpersonal styles. However, it is plausible that violent behaviour might directly fit within the Interpersonal Circumplex. It would be useful to investigate this, particularly as the majority of violent crimes perpetrated in society today are of an interpersonal nature.

1.4. About this thesis
This thesis is interested in applying the interpersonal theoretical framework to interpersonally violent behaviour. There are a variety of theoretical perspectives which have contributed to our understanding of interpersonal violence. It is important to consider that no one theory of violent behaviour is able to account for all forms of the behaviour across individuals, time and situations. As such, this thesis does not aim to provide such an exhaustive account of violent behaviour either. Rather, this thesis aims to make contributions towards the theoretical understanding of violence and inform treatment need. In order to make valid, yet broad, contributions to theory
and practise, this thesis will explore the relationship between interpersonal style and interpersonally violent behaviour amongst males only, as we think that this population are the most frequent violent offender service users. More specifically, this thesis aims to 1) explore differences in interpersonal style between a non-offending sample of men and different groups of male violent offenders, 2) examine the relationship between different patterns of interpersonally violent offences and interpersonal style, and 3) examine the relationship between aggression and interpersonal style.

As will be demonstrated in this thesis, much of that which is currently understood about violent behaviour focuses on aspects so specific as to deny an interpersonal understanding of the individual facing us. Most of what we currently know about violence relates to the specifics of biological dysfunction or disorder, cognitive processes or impairment, affect dysregulation or regulation, behavioural processes, social and societal influences and motivational or functional aspects of the behaviour. However, few perspectives consider the interactional roles of context within which the behaviour occurs, an individual's processing of an interaction between two people, the motivation for an individual to use violence and the function of this behaviour for that specific context for that individual. This thesis aims to contribute towards an understanding of an individual's motivation to use violent behaviour in interpersonal situations and to consider the function of this behaviour for the individual. This is expected to be useful for therapeutic work addressing violent behaviour, specifically in relation to understanding the psychological, interpersonal function of violent behaviour.

1.5. Overview of this thesis
Chapter 2 presents an operational definition of interpersonal violence as an "extreme form" of interpersonal aggression (Blackburn, 1989; p.61) and describes some of the difficulties in defining interpersonal violence. These include both semantic and conceptual positions, such as the relevance of the inclusion of intent to harm in such a definition, the role of context and the subjective interpretation and differentiation between aggression and violence. This chapter also includes a brief overview of the ways in which violent behaviour can be expressed and what some of the functions of such behaviour might be.

Chapter 3 discusses a variety of theoretical perspectives which have contributed to our current understanding of violent behaviour, some of which were highlighted in
section 1.1.. Following from this, specific individual difference factors which have been found to be related to violence are presented, with reference to the theoretical perspectives from which they are drawn. Literature pertaining to the classification of violent offenders is also presented, followed by the extent to which personality characteristics are related to violence. Finally, the interpersonal theoretical framework is presented and discussed with reference to what previous research using this framework has contributed to our understanding of violent behaviour.

Chapter 4 presents the aims of and rationale for empirical work presented in this thesis. Of relevance to note here is that Chapter 4 discusses the rationale for the three samples employed in this thesis, which is interested in people who have perpetrated acts of violence which have been sanctioned by society, as well as non-offenders. The reason for this is that, quite often, acts of aggression and violence are carried out which are considered to be 'socially acceptable', provided that they are within the appropriate social context. An example of this might be a brawl at a football match, or a scuffle between two people in a pub. In each case, the chance of prosecution for such behaviour is slim, although the same behaviour in a different context might be completely unacceptable. Therefore, this thesis acknowledges that there may be people within the non-offending volunteer sample who have used violent behaviour, but is interested in the factors that distinguish these people from those who have committed acts of 'socially unacceptable' violence. Furthermore, methodological and sample considerations are discussed and specific reference is made to the potential theoretical and applied contributions of this work to furthering our understanding of interpersonal violence and treatment needs of violent offenders.

Chapter 5 describes the methodology for the empirical work presented in this thesis. The same design, measures, samples and procedure are used for each of the studies presented in this thesis. Therefore, Chapter 5 also explores the structure and reliability of each of the measures and the homogeneity of the non-offending volunteer sample.

Chapter 6 focuses on the theoretical validity of the interpersonal model known as the Interpersonal Circumplex. This chapter also generates a theoretical structure within which interpersonal style and violent behaviour can be explored in subsequent chapters. Furthermore, measures of the theoretical principles of agency and communion are assessed in relation to the axes of the Interpersonal Circumplex.
model. Factors which are found not to be associated with agency and communion within this framework continue to be assessed in subsequent chapters as individual difference factors related to violence. In addition, this chapter explores differences in interpersonal style and specific individual difference factors between a sample of non-offending male volunteers and two samples of male violent offenders.

Chapter 7 explores the relationship between interpersonal style and aggression, examines differences in aggression between samples, investigates the relationship between aggression and specific individual difference factors, and locates aggression within the Interpersonal Circumplex. As was discussed in section 1.3., locating aggression or violence within one specific area of the Interpersonal Circumplex might be too restrictive. Subsequent analyses reveal that this is, indeed, the case and suggest that violence has a communicative function. Further motivations for using aggressive behaviour and the functions of such are also discussed.

Chapter 8 specifically explores the relationship between interpersonal style amongst groups of violent offenders who have committed differing levels of interpersonally aggressive and violent behaviour. Part of the rationale for this was to make our understanding of violence and violent offenders more 'manageable' and relevant to service providers for violent offenders. This is achieved, in part, and further highlights the heterogeneity of violent offenders. In addition, this chapter explores offence-related group differences on specific individual difference factors related to violence and explores the relationship between offending behaviour and aggression. Contributions towards informing the treatment and management of violent offenders are made.

Chapter 9 is a discussion of the main findings of the empirical chapters in light of the literature reviewed in Chapter 3. In addition, theoretical and applied contributions to the understanding and treatment of violent offenders are highlighted and directions for future research into interpersonally violent behaviour are outlined.
CHAPTER 2

Violence as an interpersonal behaviour

2.1. Defining interpersonal violence

The objective of defining a specific phenomenon in any body of work is to facilitate transparency of the author's perspective and to provide a shared reader-author framework for the subsequent exploration of the phenomenon. Conventional approaches to defining phenomena begin by exploring and critically reviewing the contributions of differing theoretical perspectives, supplying definitions from each and positioning oneself with one such definition. However, in the face of convention, I shall be neither exhaustive in the review process nor definitive in my understanding of violence here. Rather, I shall present some of the difficulties in defining interpersonal violence and hypothesise as to its construct before presenting an operational definition of the behaviour for the purpose of this thesis.

2.1.1. Definitional difficulties

One of the principal contributors towards a lack of a unified definition of interpersonal violence is violence itself. Differing theoretical perspectives mirror, to some extent, the broad range of constructions of violence across different groups within society, such as the legal system, the victim and the perpetrator. It would appear that any definition of violence is not only culturally-bound (Aijmer, 2000; Lubel, Wolf and Krausz, 1992; 1991), but also dependent on individual subjective experiences and understanding of the function of such behaviour.

In addition to the theoretical variability and associated contextual issues, the term 'violence' is often used interchangeably with 'aggression' and (although less so) 'hostility'. Therefore, in order to consider the construct of violence, one must also explore the broader context of aggression and hostility (Archer, 1995) which, once again, would be dependent on individual subjectivities. Furthermore, in some contexts, aggression may have positive connotations (such as socially desirable competitive or assertive behaviours), whereas violence may be restrictive because of its forensic implications. The term 'hostility' has multiple meanings and, in addition to overt aggression, it may include temper tantrums, irritability, refusal to cooperate,
jealousy, suspicion and many other attitudes and behaviours (Buss and Durkee, 1957). Volavka (1995) used the term to describe unfriendly human attitudes.

Bandura (1973; p.2) talked about entering a “semantic jungle” when attempting to define aggression and Renfrew (1997; p.5) concluded that “no clear definition of aggression exists that is commonly accepted by professionals in this area”. Buss (1961; p.1) defined aggression as "a response that delivers a noxious stimuli to another organism" and, in so doing, covered a range of aggressive behaviour including physical and verbal attacks. Indeed, one common factor across definitions of violence is the notion that it is an observable behaviour. Whilst this provides some encouragement for the researcher interested in exploring violence, it also begs the question 'can it be as simple as that'? Eichelman and Hartwig (1990) went some way to address this, by proposing that the term 'destructive' replace 'aggressive' and 'violent' and proposed that destructive behaviour "results in partial or complete injury to the physical or psychological integrity of a person or object " (p.289). However, whilst this addressed the 'psychological', rather than purely behaviourally observable aspects of violent behaviour, this definition also did not address intentionality to commit harm to another.

Buss’ (1961) purely behavioural definition was considered somewhat basic by psychologists who considered that aggressive behaviour was more elaborate and complex than his definition would indicate. In particular, it was thought that the notion of intent to harm or injure (e.g. Geen, 1990), the expectation that aggressive behaviour will result in harm to the victim (e.g. Kaufman, 1970) and the motivation of the victim to avoid such harm (Baron and Richardson, 1994) were important definitional aspects and characteristics of aggression. As intent to harm is not directly observable, Geen (1990) accepted that inferences about intent to harm are difficult but argued that this must be considered in the definition of aggressive behaviour. Incorporating a number of the complexities of aggressive behaviour, Geen (2001; p.3) defined aggression as "the delivery of an aversive stimulus from one person to another, with intent to harm and with an expectation of causing such harm, when the other person is motivated to escape or avoid the stimulus".

The construct of interpersonal violence is dependent on the internal world of an individual and the external manifestation of behaviour, although neither component is independent of subjective evaluations of the other. Therefore, it would seem that a
dimensional approach to exploring violence would facilitate consideration of the roles of aggression and hostility and the point at which violence becomes subjectively defined as so.

2.1.2. Violence or aggression?
In construction of his typologies of aggression among animals, Moyer (1976, p.2) described aggression as "overt behaviour involving intent to inflict noxious stimulation or to behave destructively toward another organism". Whilst the terms 'aggression' and 'violence' could be considered to have the same meaning, as stemming from Moyer's definition, he specified that violence denoted aggression among humans and, as such, his definition of aggression/violence was governed by context. Archer (1995) suggested that the difference between violence and aggression was also contextual, in that aggression focuses on the act, violence on the consequences. One difficulty with dichotomising behaviour in this way is that there are always exceptions to this general rule. Think, for instance, of the consequences of these two acts: a Doctor in the UK terminates a life through euthanasia and a man kills a stranger in the street in a frenzied attack. Both of these acts are (currently) illegal and both result in the death of a human being. But can both be described as 'violent'? The consequences (imprisonment) for each are the same but a judge would view each situation with different eyes when considering sentencing; one would expect the Doctor to receive a more lenient sentence. So, rather than focusing on either one of the act or the consequences, it would seem that violence (and aggression) is a far more complicated and multifaceted phenomenon to permit such simple definition. It would seem that a focus on the context within which such behaviour takes place would be a more useful approach to defining violence.

Blackburn (1993a) distinguishes between violence as "the forceful infliction of physical injury" (p.210) and criminal violence as "the illegitimate use of force" (p.210), which includes interpersonally violent injurious offences (e.g. murder, assault) as well as robbery and sexual offences. Both definitions include 'force' as a determinant of violence, which would suggest 'unwillingness' or a lack of compliance on the part of the victim, which is what distinguishes, in the previous example, the Doctor and the 'murderer'. The focus of criminal violence is on the 'unlawful' nature of the act, so would not encompass acts of war, for example. It is this 'unlawfulness' that this thesis is concerned with. Whilst a focus on such places violence within the legal framework, this interpretation offers some guidance for understanding what 'violence' means. If
an act is considered to be unlawful then one could reasonably suggest that it is considered to be unacceptable for the current social conventions (and hence another difficulty in defining violence), both at the macro- and micro-level. This "illegitimate use of force" is therefore bound by both legal and context-specific parameters that determine whether the "use of force" is 'legitimate' for a given situation. Indeed, Archer and Browne (1989; p.11) suggest to define as violence "physically damaging assaults which are not socially legitimised in any way".

The context-specificity of aggression and violence is further emphasised in Blackburn's (1993a) definition of aggression as "the intentional infliction of harm, including psychological discomfort as well as injury" (p.211), where the construction of what is 'harmful' depends on values and social context. In such a way, had our 'murderer' in the previous example been attacked first by the stranger in the street, he may be considered to have been defending himself, as opposed to 'being violent'. Therefore, the focus of aggression would appear to be on subjectively-defined 'unjustified harm-doing' (Blackburn, 1993a).

However, the distinction between 'force' and 'unjustified harm-doing' is, once again, dependent on the attributions and values of the observer. In order to provide some operational framework for the study and discussion of violence and aggression this thesis shall therefore take the position that violence is "an extreme form" (Blackburn, 1989; p.61) of aggression, constituting only a small part of that which covers the intentional infliction of harm more generally (Berkowitz, 1993; Blackburn 1998b). Although Smith (1983; p.3) stated that "physical violence represents the end point on a continuum of aggressive behaviour, it is the most extreme form of aggression", this thesis does not take such a position. Rather, it conceptualises that 'violence' may be equivalent to 'aggression' in terms of the behaviours themselves but that the context of the act distinguishes between the two. In such a way, 'violence' can occur independently of escalated 'aggression', just as 'aggression' can occur independently of 'violence'.

In Blackburn's (1993a) definitions of both aggression and violence, the role of cognition is clearly identified. To interact physically with another person 'with force', as in the definition of violence, implies a decision-making process on the part of the perpetrator to use such behaviour. Similarly, a decision-making process is evident in the "intentional infliction of harm" of another, as in the definition of aggression. This
indicates that violence and aggression are more than simply acts with a related set of consequences but are intended (or 'unjustified') behaviours with some presumed meaning, or function, for the perpetrator. Therefore, according to the definitions as put forward by Blackburn, violence and aggression are not dissimilar from a whole repertoire of human behaviours that involve cognition and motivation. What is interesting, in the study of violence, is the motivation for some people choosing to use violence when others choose alternative behaviours in comparable environmental situations.

2.1.3. Instrumental or expressive aggression/violence?
As has already been discussed, the motivational aspects of violent behaviour are crucial to any definition of such. One way of conceptualising both definitional and motivational aspects of violent behaviour is through the 'instrumental – expressive' dichotomy. This was useful to the early development of theories of aggression and continues to capture important aspects of non-human aggression (Bushman and Anderson, 2001). In the case of 'expressive' aggression (also referred to as 'reactive', 'hostile' or 'angry' aggression), the primary motive for the aggressive or violent behaviour is the desire to harm another person as an expression of negative feelings (Krahé, 2001). In the case of 'instrumental' aggression, the primary motive is to reach an intended goal. Classical examples of each of these forms of aggression are the use of violence resulting from an angry reaction to provocation ('expressive') and the mugging in the street for some material gain ('instrumental'). However, this approach is limited in its ability to account for interpersonally aggressive and violent behaviours with multiple motives. Consider, for example, the case of the teenager taunted at school whose anger builds over time. If acting in direct response to this provocation, then the ensuing behaviour would be considered to be 'expressive'. However, the teenager maintains this level of anger and meticulously plans (over a series of days or weeks or months) a complex strategy in order to seek revenge and to prove their worth as a superior and influential individual among peers. In terms of the 'instrumental-expressive' dichotomous approach, the functions of the behaviourally-executed plan are two-fold; both 'instrumental' in gaining status and 'expressive' in anger and revenge-seeking. As such, whilst this dichotomy does contribute to the pool of definitions of violence, its simplistic view can not be expected to account for the complexities of violent behaviour perpetrated by humans (Bushman and Anderson, 2001).
2.1.4. Is four better than two? Shye's action systems model

An additional approach to the classification of violence is described within Shye's (1985) action systems model, which takes the internal and external source and target of behaviour and attempts to establish scientific lawfulness regarding human behaviour. Shye suggests that there are four modes of most forms of behaviour; two sources of action, internal and external, along with two targets of the action, again either internal or external. Shye considered that a combination of the internal and external sources of action with either the agent or the environment as the targets of the action give rise to four basic modes of functioning of action systems that he labelled 'expressive', 'conservative', 'adaptive' and 'integrative'. Within such a system, the motivation of the individual in relation to their environment can be more effectively accounted for than the dichotomous 'instrumental-expressive' approach. The four modes of acting can be seen as providing hypotheses for distinguishable forms of human behaviour and also offer a way of understanding criminal behaviour at the level of individual offenders. This has so far been applied to school violence (Fritzon and Brun, 2005), intrafamilial homicide (Fritzon and Garbutt, 2001), arson (Almond, Duggan, Shine and Canter, 2005; Canter and Fritzon, 1998; Fritzon, Canter and Wilton, 2001) and terrorism (Fritzon et al., 2001).

The action systems framework places behaviours within a theoretical two-dimensional space, around the axes of source and target. The four modes are located in the quadrants of these axes, so describing the behaviour in terms of the potential interaction between the self, others and the environment (i.e. internal or external source and target of the behaviour). In an examination of school-associated homicides, Fritzon and Brun (2005) found that the most common classification of offenders was in the 'adaptive' category, which they found to be associated with general criminality. Perpetrators of violence were generally gang members, targeted specific individuals and were motivated by instrumental gain, such as monetary reward or status. School deaths located in the 'integrative' region were typically suicides, characterised by internalised psychological distress, whilst perpetrators of 'expressive' homicide tended to have random victims and inflicted violence manually, rather than with a weapon. Perpetrators characterised by the 'conservative' mode tended to have random, multiple victims (and wounds) and used extreme violence; within the action systems framework, this is explained in terms of acting on a source of frustration to feel relief.
In terms of post hoc analysis of specific behaviour, the action systems framework is useful within which to explore the functions of behaviours, at a discrete level. Furthermore, the motivations of specific behaviours can be inferred from an exploration of the internal or external source or target of the behaviour. However, as yet, the model has not been applied to take account more fully of individual difference characteristics which may contribute to the motivational and functional aspects of the behaviour and, as such, is restricted in its ability to encompass cognitions, affect and motivations at the individual level. The action systems model further emphasises the definitional difficulties of violent behaviour, particularly with regard to the variety of psychological functions of the behaviour.

2.2. Chapter summary

There are a variety of theoretical perspectives (which will be discussed in Chapter 3) which highlight the difficulties in defining violent behaviour. Furthermore, both societal and individual differences contribute to the subjective nature of defining interpersonal violence. The behaviour has been considered to be physical, verbal, psychological, and intentional, but it is clear that this multi-faceted and complex phenomenon depends upon the context within which it takes place to be defined as such. Blackburn (1993a) proposed that it was criminal violence that involved the "illegitimate use of force" which implicated not only a lack of victim compliance in the perpetration of a violent act, but also an evaluation of the legal and context-specific parameters within which the behaviour takes place. In addition, the "intentional infliction of harm, including psychological discomfort as well as injury" is also implicated within these subjectivities.

This thesis considers interpersonal violence to be an "extreme form" of interpersonal aggression, although considers that the context within which the behaviour takes place distinguishes the two behaviours, rather than some arbitrary set of discriminatory behaviours. This thesis also incorporates the "illegitimate use of force" and the "intentional infliction of harm" in its operational definition of violence, as such implicates cognitive processes in the commission of a violent act. As the research on the "instrumental-expressive" dichotomy and Shye's action systems model indicate, the motivational aspects of aggressive and violent behaviour are more difficult to incorporate into a definition of the behaviour. Suffice it to say that "intention" is imperative in a definition of violent behaviour, as is an acknowledgement that the behaviour has a variety of expressions. In addition, such expressions of violent
behaviour are related to a series of experiences which shape the way in which we deal with and relate to others. The extent to which such experiences are related to expressions of violent behaviour is reviewed in the following chapter.
3.1. Theoretical contributions towards understanding individual differences in violent behaviour

A range of theories, which reflect inherent assumptions about aggression and violence, have been put forward to address the issue of why humans utilise aggressive and violent behaviour to such varying degrees. Despite their theoretical differences, each is similar in terms of emphasising the importance of individual characteristics and the role of individual differences. However, the contribution of each of these perspectives to our understanding of interpersonal violence differs in terms of the extent to which the context within which the behaviour takes place can be accounted for. This is evident in a range of factors within each of the theoretical perspectives; a review of some of the most prominent and relevant (to this thesis) of these factors is presented in the following section.

3.1.1. The contribution of biological perspectives towards an understanding of aggressive and violent behaviour

Biological theories of aggression and violence emphasise the innateness of the aggressive stimulus-response sequence. Research on the heritability and biological location of aggressive behaviour is equivocal, but it does seem that aggressive and violent behaviour can be partially attributable to a combination of physiological mechanisms.

3.1.1.1. Animal studies

Animal research reveals the importance of the interaction between biological and social factors that act jointly to generate aggressive behaviour among both rodents (Albert and Walsh, 1982) and non-human primates (Delgado, 1963; 1981; Harlow and Harlow, 1967; Miller, 1976). The neurotransmitter serotonin is most clearly implicated in the inhibitory control of aggression (Chamberlain, Ervin, Pihl and Young 1987; Miller, Pachter and Valzelli, 1979; Valzelli and Bernasconi, 1979), as are androgens, such as testosterone (Frank, Glickman and Licht, 1991). However, social factors, particularly dominance (Rosvold, Mirsky and Pribram, 1954), appear to be
more important than biochemical factors in the regulation of aggression among animals.

The relationship between social dominance and aggression will be addressed in the context of evolutionary perspectives (section 3.1.2.), although some discussion of this is warranted here. Intermale aggression (see Moyer, 1976) is directed against (male) individuals of the same species. In the majority of mammalian species, the male is more aggressive than the female under most conditions and the most frequent target of aggression is a conspecific male (Volavka, 1995). Aggressive encounters between males may be ritualised, usually resulting in a demonstration of superiority of one individual over another, and usually accomplished without serious injury to either contestant. After several aggressive contacts between a pair of males, the subordinate animal avoids repeated defeats by submissive posturing in response to anticipatory fighting postures and threats by the dominant male and, as such, a dominance-submission relationship is created. A series of such relationships in an established colony or group of animals contributes to the hierarchical social order, which can thus be maintained with a minimal number of actual fights (Volavka, 1995).

The relationship between social dominance, serotonin and aggression has been described in studies of crayfish. Barinaga (1996) reported that crayfish have a specific neuron that responds differently to the neurotransmitter serotonin, depending on the animal’s status. In dominant crayfish the presence of serotonin makes the neuron more likely to fire. In the submissive crayfish serotonin inhibits the neuron from firing. However, dominance and submission are dynamic within a social context. As such, it was hypothesised that when two subordinate crayfish were placed in the same territory together, one would shift from subordinate to dominant status. After two weeks, the relevant neuron of the dominant animal was excited, rather than inhibited, by serotonin. However, when two previously dominant crayfish were placed in the same territory, one was inevitably forced into subordinate status. The previously-dominant loser continued to be aggressive and forced fights with the dominant crayfish, even to the point of being killed. Barinaga (1996) commented that it is as if “the animals are reluctant to go from being dominant to being subordinate” (p.290).

Similar results of the inter-relationship between serotonin and social dominance were found in a series of experimental studies with vervet monkeys. McGuire and Troisi
(1998) found that male vervet monkeys with high social rank had almost twice as much serotonin in their blood as the low-ranking monkeys. When dominant males were overthrown their serotonin levels fell, whilst those of low-ranked monkeys who ascended to power increased. In another study, McGuire and Troisi (1998) reported that they could dramatically reduce the serotonin levels of an alpha male by placing him in front of a one-way mirror, such that he was unable to see the submissive displays of others. The authors reported that the serotonin levels of the alpha males fell, apparently because he interpreted the failure of others to submit as a sign of lost status.

Testosterone has also been closely connected with dominance and status in a variety of animal species (Buss, 1999). In one study, low-ranking cows were treated with testosterone (Bouisso, 1978) and subsequently rose in status among the other cows. When testosterone was withdrawn they reverted to their previous, low-ranking status. A similar effect was documented for low-ranking roosters who were injected with testosterone. Their comb sizes increased and they rose in status hierarchy, sometimes to the top of the 'pecking order' (Allee, Colliian and Lutherman, 1939).

Although the relationship between serotonin, testosterone, social dominance and aggression has not been explored among humans, the interactive nature of biological and social factors among animals is clearly important in the aetiology of aggressive and violent behaviour.

### 3.1.1.2. Serotonin

Research into the biochemical basis of aggressive and violent behaviour among humans has mostly carried out with prisoners. As with the results from animal studies, serotonin is clearly implicated in the control of aggression (Lemarquand, Benkelfat, Paimour, Séguin, Young, Tremblay and Pihl, 1998), low levels of which may result in the disinhibition of quick motor responses (Volavka, 1995). However, no simple, direct relationship between serotonin and aggressive behaviour has been found (Krakowski, 2003).

Studies of cerebrospinal fluid (CSF) levels of 5-hydroxyindoleacetic acid (5-HIAA), believed to reflect presynaptic serotonergic activity in the brain (Cocarro, 1989), have found a reduction in central serotonergic activity among Finnish prisoners with a conviction for murder (or attempted), whose offence was classified as impulsive and
who also had a history of attempted suicide and alcohol abuse (Linnoila, Virkkunen, Scheinin, Nuutila, Rimon and Goodwin, 1983). Stanley et al. (2000) found an association between aggressive behaviour and serotonergic dysfunction independent of suicidal behaviour in patients who exhibited relatively milder forms of aggressive behaviour. To account for the effect of previous alcoholism to some extent, Virkunnen, Rawlings, Tokola, Poland, Guidotti, Nemeroff, Bissette, Kalogerias, Karonen and Linnoila (1994) found that alcoholic, impulsive offenders with antisocial personality disorder also had reduced serotonergic activity, as measured by CSF 5-HIAA, although a group of alcoholic non-impulsive offenders had elevated levels of serotonin, higher even than healthy non-offending controls.

Linnoila et al. (1983) reported that those offenders who had more than one conviction for a violent offence had CSF 5-HIAA levels 22% lower than those who committed only one violent offence, and concluded that the reduction in central serotonergic activity was related to impulsive behaviour, of which aggressive and violent behaviour are but one form. A French study (Bioulac, Benezech, Renaud, Noel and Roche, 1980) of six XYY genotype males convicted of violent offences also found a reduction in CSF 5-HIAA levels, although the chromosomal abnormality was not accounted for in these findings (see section 3.1.1.5. for further discussion). Four members of this sample had also received a conviction for arson; Virkunnen, Nuutila, Goodwin and Linnoila (1987) found that male Finnish arsonists who set fires impulsively had reduced levels of CSF 5-HIAA in comparison with violent offenders.

Replication of these studies in UK prison populations would not be possible, as spinal tap would not be considered to be an ethically acceptable experimental procedure in consenting prisoners. Alternative assessment of central serotonergic functioning has been carried out through neuroendocrine challenges of central serotonin receptors. Using d-fenfluramine challenge (via blood plasma), Coccaro, Siever, Klar, Maurer, Cochrane, Cooper, Mohs and Davis (1989) found that central serotonin activity was low among a group of patients with personality disorder (mainly borderline personality

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1 The antisocial personality disorder category of the Diagnostic and Statistical Manual of Mental Disorders – IV (DSM-IV; American Psychiatric Association, 1994) aims to identify a consistent pattern of ignoring and violating the rights of other people. This is particularly likely to entail psychological or physical aggression and is among the traits defining antisocial personality disorder in DSM-IV. Please refer to appendix 1 for a full description of this DSM-IV diagnostic construct.
disorder\(^2\)) who had a history of suicide attempts and alcohol abuse and who also self-reported high levels of aggressive and impulsive behaviour. Similarly, Dolan et al. (2001) found reduced serotonergic functioning among a group of UK high security patients with a diagnosis of borderline personality disorder and those with a history of self-harm or alcohol misuse. As with the CSF 5-HIAA studies, Cocarro et al. (1989) concluded that, in individuals prone to impulsive actions (including suicide attempts, alcohol abuse and aggression), central serotonergic dysfunction was implicated. In support of this, Dolan et al. (2001) reported a stronger negative correlation between low central serotonin activity and impulsivity, rather than aggression.

An unspecified central dysfunction of the serotonergic system is linked to impulsive behaviour, of which impulsive aggressive or violent behaviour are subtypes. Krakowski (2003) suggests that the influence of serotonin is best analysed within a broader framework that includes consideration of its role in the inhibition of impulses, the regulation of emotions and social functioning, domains that are closely linked to aggression.

One benefit of conducting neurobiological research among groups of people who have received convictions for violent offences is that the relative stability of central serotonergic activity can be assessed. The research presented above would suggest that the dysfunction of the serotonergic system is stable over time, rather than situation-specific, although it has not, as yet, been able to take into account the dynamic effect of an individual's emotional regulation and social abilities. Whether aggression will occur when serotonin dysfunction is present will depend on individual differences, as well as the overall social context. The debate over the role of serotonin in the aetiology of aggressive behaviour highlights the complexities of aggression and violence.

### 3.1.1.3. Testosterone

Research into the effects of testosterone on human aggression appears equivocal. Some studies have assessed testosterone levels via blood plasma, with varying results. Bain, Langevin, Dickey and Ben-Aron (1987) found no differences in

\(^2\) The borderline personality disorder category of the DSM-IV (American Psychiatric Association, 1994) aims to identify a pervasive pattern of instability of interpersonal relationships and affect, as well as marked impulsivity. This can include the consistent experience of intense anger or difficulty controlling anger. Please refer to appendix 1 for a full description of this DSM-IV diagnostic construct.
androgen levels among two groups of forensic psychiatric patients convicted of differing levels of violent crime (e.g. murder, assault) and a further group of patients convicted of property crime. Ehrenkranz, Bliss and Sheard (1974) found that testosterone levels were almost twice as high in aggressive prisoners (those who had received a conviction for a violent crime and who were also physically aggressive in prison) than non-aggressive prisoners and Dolan et al. (2001) found that, among a sample of 60 male forensic psychiatric patients with personality disorder, plasma testosterone was positively correlated with aggressive in-patient acts. Kreutz and Rose (1972) found no relationship between levels of testosterone and assaultive behaviour in prison, nor did they find a relationship between plasma testosterone and self-reported aggression among prisoners. This latter finding was supported by Ehrenkranz et al. (1974).

Kreutz and Rose (1972) also found that prisoners with a history of violent crime in adolescence had higher testosterone levels at the time of the study (some 10+ years later) than those prisoners who did not have a history of juvenile criminality. However, as with research into the effects of serotonin on aggression, the relationship here between testosterone and aggression is indirect and, at best, tentative. In addition to retrospective speculation, the research carried out by Kreutz and Rose was characterised by an additional difficulty typical of research into aggressive and violent behaviour; classification of violent crime was ambiguous. In this instance the authors chose to include escape from institutions as violent behaviour and the extent to which this may have distorted their results can not be estimated from their published data. However, Mattsson, Schalling, Olweus, Löw and Svensson (1980) provided limited support for the findings of Kreutz and Rose (1972), concluding that male adolescent delinquents had higher levels of testosterone than adolescent controls and that adolescents convicted of violent offences also had higher levels of testosterone than non-violent delinquents.

The method of analysis of testosterone levels in the above research may have contributed more towards the variability of results than the androgen itself. Testosterone is released into the body in a pulsating pattern and, as such, levels of blood plasma testosterone are inherently variable (Volavka, 1995). Dabbs, Frady, Carr and Besch (1987) conducted analyses via saliva swabs among a relatively large number of male prisoners (n=89) and found that the group of violent offenders had a slightly higher average level of testosterone than the non-violent prisoners.
Testosterone levels also appeared to be related to aggressive behaviour in prison, although this relationship may have been a false positive as numerous univariate tests were employed. The most reliable current method of assessing testosterone levels is through analysis of cerebrospinal fluid (CSF), although it is subject to ethical difficulties, as previously discussed. A Finnish study which did use this method of analysis (Virkunnen et al., 1994) found that alcoholic, impulsive offenders with antisocial personality disorder had elevated levels of CSF testosterone and concluded that CSF testosterone levels were associated with aggressiveness or interpersonal violence. The extent to which these findings could be explained by previous alcoholism or impulsivity is unclear, although the results would appear to confirm the findings of previous research using differing methodologies.

Overall, the literature suggests that a history of violent behaviour is associated with a slight but relatively consistent elevation of testosterone levels, which is more pronounced in adolescence. Whether high levels of testosterone are a consequence of aggressive behaviour or an antecedent is unclear.

3.1.1.4. Brain dysfunction

Studies investigating the contributions of different areas of the brain on violent behaviour have involved mainly mentally disordered offenders. Naturally-occurring lesions of the temporal lobes (Volkow and Tancredi, 1987), pre-frontal cortex (Raine, 1993) and frontal lobes (Yeudall, 1977; Yeudall and Fromm-Auch, 1979) may elicit aggressive behaviour, which is more likely to occur if the lesion involves the dominant hemisphere (Yeudall and Fromm-Auch, 1987). Areas of the limbic system such as the amygdala (Mark, Sweet and Ervin, 1975), hippocampus (Mark and Ervin, 1970) and hypothalamus (Weiger and Bear, 1988) have also been implicated in the regulation of aggressive behaviour and surgical lesions of the amygdala (Mark et al., 1975) have been used to control aggression in a small number of patients. Neuroimaging studies support and extend the findings of lesion studies, associating violent behaviour with disruptions in frontotemporal neural systems (Hopstman, 2003; Miller, 1999a). Results from the investigations of evoked potentials (Drake, Hietter, Pakalnis, 1992; Drake, Pakalnis, Brown and Hietter, 1988; Miller, 1999a; Raine, 1999a; Raine, 1999b) have been used to control aggression in a small number of patients.

The concept of mental disorder connotes dramatic, harmful, or unusual behaviours whose classifications are published in the DSM-IV (American Psychiatric Association, 1994). According to the DSM-IV definition of mental disorder, the mental condition must have negative consequences for the person (e.g. distress, disability) and result from dysfunction of some internal process within that person. This general concept includes those of mental illness (e.g. schizophrenia, bi-polar disorder), personality disorder and learning disability.
1988) also suggest that violent individuals have deviant processing of sensory input at all levels from the peripheral nerve to the cortex. Furthermore, research indicates that offender groups seem to have greater rates of head injury in their medical histories (Miller, 1999b).

Using a range of potential indicators of organic brain abnormality (such as history of head injury, epilepsy, abnormal neurological findings and cognitive impairment), Martell (1992) found that 64% of a random sample of North American maximum security forensic psychiatric patients were found to have two or more indicators, while one potential indicator was found in 84%. Applying the same indices among a British high security hospital admissions cohort, Lumsden, Chesterman and Hill (1998) found that 60% of patients had at least one potential indicator of organic brain abnormality and that 32% of these had two or more potential indicators.

Among prison populations, comparisons between violent and non-violent offenders on a series of neuropsychological tests have demonstrated a generally higher level of cognitive functioning in non-violent groups (Spellacy, 1978; Robertson et al., 1987). Among violent offenders, frontal lobe or 'executive' functioning has most consistently been associated with impairment on tasks sensitive to functioning in this area (Gorenstein, 1982; Yeudall and Fromm-Auch, 1979). This supports the findings of lesion (Yeudall, 1977) and neuroimaging (Hoptman, 2003; Miller, 1999a) studies of aggressive and violent behaviour. The extent to which these findings are related to impulsive rather than violent behaviour is unclear, as both are implicated in executive dysfunction.

Together, these studies suggest that multi-site brain dysfunction may elevate aggressiveness via cognitive impairment, specifically in terms of the inability to anticipate adverse future consequences of aggression and the inability to resolve conflicts verbally (Volavka, 1995).

3.1.1.5. Genetic basis
As mentioned in section 3.1.1.2., XYY genotype males have been the subject of research into aggressive and violent behaviour, as the extra Y chromosome was thought to add additional masculine aggression (Owen, 1972). The most comprehensive investigation into the relationship between sex chromosomes and aggressive behaviour was carried out using a Danish birth cohort (Witkin, Mednick,
Schulsinger, Bakkestrom, Christiansen, Goodenough, Hirschhorn, Lundsteen, Owen, Philip, Rubin and Stocking, 1976). As both XYY and XXY men were found to have a higher conviction rate for property (but not violent) crime and were of lower intelligence than XY controls, the authors concluded that low intelligence, rather than chromosomal anomaly, mediated between the extra sex chromosome, breaking a law and getting caught for committing a crime. In a follow-up study, Schiavi, Thielgaard, Owen and White (1984) noted that, during structured psychological interview, some XYY men reported more physical aggression toward their wives than did the XY controls, although this was not generally supported by information from social records and projective tests.

Studies comparing monozygotic and dizygotic twins have found greater pairwise concordance for criminality (unspecified whether violent or non-violent) among monozygotic twins (Christiansen, 1977a; 1977b). As monozygotic twins generally share more environmental influences than dizygotic twins (Volavka, 1995), Rowe and Osgood (1984) partially controlled for these effects in a twin study of self-reported delinquency. The monozygotic concordance rates for delinquency were higher than the dizygotic pairs, although the extent to which a clear genetic basis is responsible for deviant behaviour is unclear as it is not possible to completely control for environmental effects.

Adoption studies have made some progress in separating out the effects of genes and the environment on criminal behaviour. In a large adoption cohort in Denmark, a significant correlation was found between the adoptees and their biological parents for convictions of property crimes (Mednick, Gabrielli and Hutchings, 1984) although, once again, no such relationship was found for violent crimes. Support for the genetic basis of this finding was furthered through the lack of a statistically significant correlation between adoptee and adoptive parent court convictions; the role of the environment seemed to play little part in criminal behaviour. In a follow-up study using the same data, Moffitt (1987) found that alcohol abuse and personality disorder in biological parents was associated with non-violent criminal behaviour perpetrated by their adopted-away sons. A more comprehensive study exploring genetic-environment interactions supported Moffitt's finding. Cadoret, Yates, Troughton, Woodworth and Stewart (1995) interviewed adoptees whose biological parents had received a diagnosis (from prison and hospital records) of antisocial personality disorder and/or alcohol abuse and adoptees whose parents had no psychopathology.
Cadoret et al. (1995) found that having a biological parent with antisocial personality disorder predicted an increase in adolescent aggressive behaviour, conduct disorder and adult antisocial behaviour. In addition, adoptees living in an 'adverse' adopted home (e.g. adoptive parents had divorced, presence of antisocial behaviour in the home environment) were also predicted to have increased adult antisocial behaviour. Furthermore, an adverse adoptive home environment and having biological parents with antisocial personality disorder interacted to predict increased aggressiveness and conduct disorder among adoptees, over and above either one of the variables in isolation. Together, these adoption studies provide some evidence for a genetic basis for general criminality and adolescent aggressivity, but not for violent crime specifically. However, the extent to which the propensity towards criminal behaviour is genetically-determined or as a result of pre- and peri-natal influence is unclear from the studies described above.

There is some evidence that pregnancy and delivery complications probably interact with genetic influences and, together, generate a propensity for violent criminal behaviour (Brennan, Mednick and Mednick, 1993), although the extent to which the neurological damage caused during the pre- and peri-natal stages contributes towards future aggressive and violent behaviour is unclear. A longitudinal study of a birth cohort in Denmark (Litt, 1972) found that pregnancy or birth complications interacted with social class, rather than violent crime directly. Interestingly, violent crime was associated with pre- and peri-natal complications in the middle social class but not in the low social class, suggesting that environmental factors play a more prominent role in the aetiology of violent behaviour among those in the low social class. More recently, research into the relationship between pregnancy and birth complications and future aggressive behaviour have found that maternal prenatal smoking is related to arrests for violent and non-violent crimes (Brennan, Grekin and Mednick, 1999) and that complications during pregnancy in combination with inadequate parenting presents the highest risk of violent and non-violent offending, followed by inadequate parenting alone (Hodgins, Kratzer and McNeil, 2001). These two studies lend some support to Litt's (1972) study and demonstrate the interactive nature of pre- and peri-natal complications and the environment in aggressive and antisocial behaviour. However, as previously discussed in this section, the genetic contribution to aggressive and antisocial behaviour can not be fully accounted for in these studies. It could be suggested that the linkages between maternal prenatal smoking, for example, and later antisocial behaviour reflect a genetic process in
which the offspring of mothers who smoke during pregnancy are more likely to inherit genotypes that are associated with increased risk of externalised problem-solving behaviours (Fergusson, 1999), of which antisocial behaviour and aggression, in particular, are such forms. What is clear from studies investigating the genetic basis of aggressive and violent behaviour is that genotype may dispose an individual towards becoming an aggressive person, but that environmental factors play a crucial role in determining whether that disposition will be reinforced or counteracted.

3.1.1.6. Mental disorder
As mentioned briefly in an earlier section, the term ‘mental disorder’ encompasses the constructs of mental illness (e.g. schizophrenia, bi-polar disorder, psychosis), personality disorder and learning disability. Within the literature exploring mental disorder and violence the terms ‘mental disorder’ and ‘mental illness’ are occasionally used interchangeably. However, for the purposes of consistency with diagnostic nomenclature, this section will differentiate between the general term ‘mental disorder’ and the concept of ‘mental illness’.

Taylor, Leese, Butwell, Daly and Larkin (1998) examined the association between mental disorder and violence among a complete sample of mentally disordered offenders in high security hospitals resident within a six-month period. They found that 58% of the total sample had a functional psychosis (a quarter of which also had a diagnosis of personality disorder), 26% had received a diagnosis of personality disorder (with no dual diagnosis of psychosis) and a further 16% were learning disabled. Consistent with previous research into the relationship between substance abuse and mental illness (e.g. Swanson, Holzer, Ganju and Jono, 1990), patients with psychosis and personality disorder were also likely to have a significant history of substance use pre-admission. Taylor et al. (1998) also reported that a diagnosis of schizophrenia was most strongly associated with interpersonal violence (75% of whom reported that offences had been driven by delusional beliefs), as indexed by offending history, although no current assessment of aggression or in-patient incidents was made. As the prevalence figures (of psychosis, personality disorder and learning disability) might suggest, these findings can not support a conclusion that mental illness is most strongly associated with violent behaviour. Whilst there is no wholly conclusive evidence that the mentally ill are more likely to commit crime than anyone else (Dayson, 1993), there does appear to be a significant relationship between serious mental illness and violence. People suffering from severe mental
illness, particularly schizophrenia, have been found, with some consistency, to commit violent crimes at significantly higher rates than non-mentally ill offenders. Lindqvist and Allebeck (1990) suggest that people with schizophrenia may be as much as four times more likely than those without a mental illness (or any other form of mental disorder) to commit violent offences.

In England, the number of homicides committed by the mentally ill has remained quite stable (or has even declined) over the last 40 years (Taylor and Gunn, 1999). Indeed, because homicide convictions have increased overall, the relative stability of section 37\(^4\) manslaughter convictions means that the proportion of homicides committed by the mentally ill has actually decreased (Thornicroft and Goldberg, 1998). Despite this, a substantial body of research has amassed investigating the relationship between mental illness (particularly schizophrenia) and offending behaviour, in part due to the increase in pressure from society to reduce the already minimal risk of violence which the mentally ill pose (Taylor and Gunn, 1999).

The association between cognitive impairment and schizophrenic illness is well established (Frith, 1992; David and Cutting, 1994). As discussed in section 3.1.1.4., cognitive impairment has been found, with some consistency, to be linked with aggressive and violent behaviour; as such, it is likely that the relationship between mental illness and violence is mediated by cognitive impairment. In a study of consecutive male admissions to an English high security hospital, Hill, Chesterman, Lumsden, Tidmarsh and Murphy (unpublished paper) found that 61% of all mentally disordered patients had unequivocal cognitive deficits. Although there were no significant differences in level of deficit between patients with a diagnosis of mental illness or personality disorder, differences in type of cognitive dysfunction were evident. Deficits in speed of information processing and general "cognitive flexibility" (Hill et al., p.7) were clear among patients with a diagnosis of schizophrenia. Among patients with a diagnosis of antisocial personality disorder (without a dual diagnosis of mental illness), some degree of verbal inferiority was found, particularly in relation to capacity to understand and express verbal propositions and also a trend to behave more impulsively and rapidly on simple motor tasks. Although this study did not explore the relationship between cognitive impairment and violent behaviour directly, such a relationship is implied through the nature of the sample, all of whom would

\(^4\) Allows a court to send a person to hospital for treatment (under the Mental Health Act for England and Wales, 1983), when otherwise the outcome might have been a prison sentence.
have used seriously aggressive or violent behaviour. Furthermore, the lack of any statistically significant difference in cognitive deficit between patients with a diagnosis of mental illness or personality disorder would suggest that cognitive impairment more generally is associated with aggressive and violent behaviour, rather than mental illness.

The prevalence of mental disorder within UK prisons is variable. In a study of males remanded in an English prison, Watt, Torrison and Torpy (1993) found that 20% of 20-65 year-olds had mental health problems, of which 26% had an unspecified psychiatric disorder, 13% personality disorder and 3% psychosis. Prevalence figures of mental disorder were similar in a study of 17-21 year old convicted males, although mental health problems were generally less widespread (5% general prevalence; Gunn, Maden and Swinton, 1991). The figures here for personality disorder are comparable to the general population prevalence figure of 10-13% (de Girolamo and Dotto, 2000) so, at a first glance, it would appear that personality disorder has little to do with criminality more generally. However, de Girolamo and Dotto (2000) also found that personality disorders are more common in the 25-44 year old age group and that antisocial personality disorder was more common among males, characteristics of the samples of both Watt et al. (1993) and Gunn et al.’s (1991) research. The extent to which the prevalence of personality disorder in prisons may have been underrepresented in these studies was highlighted by the findings of the 1997 Office of National Statistics survey (Singleton, Meltzer, Gatward, Cold and Deasy, 1998), which reported prevalence figures of 78% for male remand prisoners and 64% for male sentenced prisoners. The prevalence figures for psychiatric disorders and psychosis among prisoners is higher than the national general prevalence figure of 6% for males living in private households (Singleton, Bumpstead, O'Brien, Lee and Meltzer, 2001).

There are multiple difficulties in assessing prevalence rates for mental disorder in forensic settings. There is generally no systematic screening for mental disorder within the prison service, so prevalence rates rely on the expertise (and time constraints) of the research teams. Even within forensic health care services which admit individuals with personality disorders, there is a lack of systematic, formal assessment (Milton, 2000). As such, some personality disorders may be underrepresented in the prevalence literature, although antisocial personality disorder may be overrepresented. Within the Diagnostic and Statistical Manual for Mental
Disorders (DSM-IV; American Psychiatric Association, 1994), one diagnostic criterion for antisocial personality disorder is the "failure to conform to social norms with respect to lawful behaviours as indicated by repeatedly performing acts that are grounds for arrest" (p.649). Therefore, it is likely that most (violent or non-violent) offenders will satisfy at least one of the criteria for this personality disorder. Furthermore, mental illness may be overrepresented, both among remand prisoners who may feign psychotic symptoms to plea diminished responsibility at trial, and among those whose cultural background and associated behavioural nuances are little understood by British mental health professionals. A more fundamental consideration of prevalence research findings is that there is often insufficient information to assess whether a mental disorder developed post-incarceration (and so potentially a result of environmental stress), or whether the mental health difficulties contributed directly towards offending.

One study which goes some way to address this issue is that of Swinton, Maden and Gunn (1994), who compared the prevalence of mental disorder among male life-sentenced prisoners (over 18 years of age) and non-life-sentenced prisoners. The life-sentenced prisoners had a slightly higher prevalence of psychotic disorders (4%) and unspecified psychiatric diagnoses (42%) than their counterparts (2% and 37%, respectively), but a far higher prevalence of personality disorder (18%, compared to 7% among non-life-sentenced prisoners). Whilst this finding does not readily distinguish between cause and effect of incarceration on mental health, it does indicate that personality disorder was more prevalent among men who received a life sentence for a severe offence. The developmental nature of personality disorder would suggest that this influenced offending behaviour, rather than developed as a result of environmental stress post-offence.

In an extensive review of the literature, Bonta, Law and Hanson (1998) found that offenders with mental disorders were no more criminally prone or violent than offenders without mental disorders. In fact, offenders with mental disorders were less likely to commit further crimes than non-disordered offenders, probably due to increased community supervision. Bonta et al. (1998) reported that, while mental disorders may help predict violent behaviour in some offenders, other factors such as

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5 This research was conducted before the '3 strikes and you're out' policy, in which repetitive offenders for minor offences (relative to murder, for example) would receive a life sentence.
criminal history, substance abuse or family problems were generally more useful in predicting violent behaviour.

In a study of mental disorders and violence among a birth cohort of 961 young adults in New Zealand (the Dunedin study), Arseneault, Moffitt, Caspi, Taylor and Silva (2000) also provided support for the relationship between substance use and violent behaviour. They reported that those with an alcohol or marijuana dependence (both classified as mental disorder) were 1.9 and 3.8 times, respectively, more likely to be violent than non-disordered controls and individuals with schizophrenia-spectrum disorders were 2.5 times more likely to use violence. Together, the mentally-disordered young adults accounted for half of the total sample's violent crime, with 10% of violence risk attributable to schizophrenia-spectrum disorder. In this sample, violence among those with severe mental illness (e.g. schizophrenia) was explained by a perception of threat and a history of conduct disorder.

Whilst the relationship between mental disorder and violence is not altogether clear, there does appear to be a higher prevalence of mental illness and personality disorder among those who have committed offences (as indexed by prevalence rates from prisons) than would be common in the general UK population. As discussed earlier, some studies have found serotonin and testosterone to be related to antisocial personality disorder, impulsive behaviour and interpersonal violence. Therefore, these associations could serve to explain the higher prevalence of personality disorder within prisons. Furthermore, cognitive impairment - and its association with both violence and mental illness - may also contribute towards an explanation of a higher prevalence of psychiatric disorders and psychosis in prisoners convicted of violent offences. These people may attract the attention of the police and others more readily than their non-mentally-ill counterparts. Finally, it is often unclear whether mental disorder plays a causal role in the commission of offences, or whether it is a product of environmental stressors.

3.1.1.7. Summary
There do appear to be biological correlates for some forms of (mainly impulsive) aggressive and violent behaviour, although they are probably restricted to a small proportion of all cases. Among animals, dominance in social groups appeared to have more influence over the regulation of aggression than biochemical factors; this association has not been explored among humans. Several biological factors are
important to consider among mentally disordered offenders, in particular. It would seem that mentally disordered offenders encompass many of the biological correlates of violent behaviour and, for this reason, would be a useful population within which to further explore violence. Impulsive violent behaviour, related to central serotonergic dysfunction, is prominent among borderline and, to a lesser extent, antisocial personality disorders. The evidence of a relationship between psychoses and violent behaviour is compelling. Furthermore, multi-site brain dysfunction and associated cognitive impairment is prevalent among both personality disordered and mentally ill offenders (Hill et al., unpublished paper). However, despite the accumulation of biological factors related to violent behaviour among this group, not all people with mental disorder commit violent crimes. This implicates the role of the environment and other individual factors in the aetiology of violence. Biological theorists agree that biochemical and neurological factors are not able to solely take account of aggressive and violent behaviour and that biochemical indicators in particular are influenced by an individual’s environment. Through animal studies, there is some suggestion that (human) interpersonal interactions may be more influential than biochemical factors in the regulation of aggression.

3.1.2. The contribution of evolutionary perspectives towards an understanding of aggressive and violent behaviour

Daly and Wilson (1995) argue that violence can not be dismissed as pathology, as such would indicate a failure of the human evolutionary system. As has been evidenced in the previous section on biological influences on aggressive and violent behaviour, damage to particular brain structures can lead to pathologies of violence, but this implies that there is some inherent structure for the generation of adaptively organised violence. The evolutionary perspective proposes that an adaptive process has taken place whereby physiological mechanisms are a part of our encounters with stimuli that threaten our survival and fitness (Buss and Shakelford, 1997). In such a way, the physiological antecedents and behavioural components to aggressive behaviour function as a tool to facilitate survival.

Buss (1999) outlines six key adaptive problems that might be solved by a strategy of aggression: taking the resources of another, defending against attack, inflicting costs on same-sex rivals, deterring rivals from future aggression (through the establishment of reputation), deterring long-term mates from sexual infidelity and negotiating status and power hierarchies. Within each of these strategic problem-solving situations, the
evolutionary perspective specifies aggression as likely to be highly context specific, triggered only in those which our ancestors confronted certain adaptive problems and reaped particular benefits. Furthermore, the evolutionary perspective views aggression as occurring through a series of evolved psychological mechanisms that are sensitive to the social contexts in which aggression is considered to be an adaptive response (Buss, 1999). This is especially pertinent to the negotiation of status and power hierarchies, as the use of aggression may decrease status within some groups. For example, throwing punches in an auditorium would likely decrease one's status among co-theatre-goers, although the same behavioural act in front of an audience within a boxing ring would likely gain status. However, difficulties with this perspective arise when the internal evaluation of appropriate context-specificity do not match the external.

In order to sustain the evolutionary basis for adaptive violent behaviour, it is proposed that a complex, yet momentary, analysis of risk to the self and potential outcome is carried out before electing whether to ‘fight’ or ‘fly’ (Daly and Wilson, 1995). This perspective assumes that an individual has the capacity to make such pro-evolutionary decisions based on good cognitive functioning. However, contra-evolutionary acts may be perpetrated by those who are cognitively impaired (e.g. in the case of brain dysfunction) or whose processing of social information is in some way distorted. Lorenz (1966) proposed that violence was functional for the survival of the species, but failed to take account of individual propensities to use violence to lesser or greater degrees than others. In addition, Lorenz’s theory did not appear fully to take account of intra-species conflict and the lethality of violent behaviour. Furthermore, it is difficult to find any evolutionary benefit for acts of violence which are driven by purposeful gain. The aim of a street mugging may be to facilitate survival through the acquisition of material goods, but the evolutionary function of more sadistic behaviour is less obvious.

Defensive and competitive forms of aggressive and violent behaviour (from an evolutionary perspective) are evident among animals and humans, particularly with regard to the selection of a reproductive partner and the protection of territory and offspring. In each of these cases, the function of violence is to ensure one’s own survival and subsequent continuation of genes, through establishing dominance (Daly and Wilson, 1995), as discussed in section 3.1.1.1. However, the extent to which
individuals are willing to ensure their own survival also depends on individual differences, specifically in terms of motivation and dominance.

Evolutionary explanations of violent behaviour are refreshing; they encourage the consideration of the beneficial, adaptive aspects of aggressive and violent behaviour and emphasise individual contextual motivations for carrying out such acts. However, this perspective seems to offer little in terms of understanding the cognitive and affective states of individuals in aggressive and violent contexts and, therefore, is unable to contribute greatly towards understanding individual differences in violent behaviour, other than at the motivational level. Furthermore, an evolutionary approach tells us little about acts of violence committed by those with 'pathologies' (for example, individuals with brain lesions, mental disorder) of violence.

3.1.3. The contribution of social learning perspectives towards understanding aggressive and violent behaviour

Social learning perspectives reflect the influence of the environment on an individual's behaviour. The specific mechanisms leading to the acquisition of aggressive scripts and behaviours have been studied with reference to two general principles of learning, reinforcement and imitation (Krahé, 2001). Brief reviews of each are presented below, as both are important for the context of this thesis, specifically in terms of the function and maintenance of interpersonally aggressive and violent behaviour.

3.1.3.1. Reinforcement

Learning theorists consider aggression to be learned following the experience of direct and vicarious reinforcement and punishment. Violent behaviour is seen as the product of learning over a series of interpersonal interactions. The operant conditioning principles of negative and positive reinforcement inform a range of human behaviours and form the bases for widely-accepted social cognitive theories.

Through negative reinforcement, behaviours are reinforced or strengthened by removing or preventing some aversive condition. Patterson et al. (1967) conducted an observational study of the aggressive behaviours of children in a nursery school over a nine-month period and found that when relatively passive children were attacked and could counter-attack successfully and escape further attack, their future attack behaviours increased. Furthermore, observations of aggressive interactions...
between older children and adults (Patterson, Dishion and Bank, 1984) have shown that if the victim strikes back to try to terminate the attack, the aggressor increases their own attack, which may increase the intensity of the reciprocal attack, and so forth. Therefore, physical aggression or violence could potentially escalate from an aggressive interaction.

Through positive reinforcement, aggressive behaviour is followed by the presentation of some rewarding stimulus or event, which renders aggression more likely to occur in the future in similar situations. In Patterson et al's (1967) study of nursery school children, positive reinforcement occurred when an attacked child released a toy or withdrew from the play area. The potential for positive reinforcement to escalate aggressive behaviour was also demonstrated by Parke et al. (1972), who reinforced hostile remarks made by adults, which led to an increase in physical aggression. One study also reported on how violence to the self, in the form of self-injurious behaviour, is increased through positive reinforcement in the form of attention from others or expression of concern (Vollmer, Iwata, Zarcone, Smith and Mzaleski, 1993).

However, the distinction between the removal of a noxious stimulus and the attainment of reward is often unclear when these principles are applied to aggression and violence, as each is dependent on individual motivation. Aggression that is instrumental to achieving a goal, or instrumental aggression\(^6\), is positively reinforced by rewards, such as status, approval or material goods. In terms of criminal violence, one might consider robbery to be an act of instrumental aggression, as the consequence for the perpetrator is the attainment of material goods. However, the motivation to commit such a crime could equally be to avoid poverty, hunger, a decline in status or a lack of material goods; in this case, robbery could be said to be negatively reinforced. This highlights the role of motivational individual differences in aggressive and violent behaviour and necessitates the exploration of such differences in understanding the function and maintenance of such behaviour.

If aggressive behaviour brings rewards through either positive or negative reinforcement then an individual is likely to continue to use it. Aggression can also allow the individual to feel in control of a situation over which they feel they have little. This may be relevant to interpersonal situations in which, for example, people with

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\(^6\) The use of the term 'instrumental' here shall refer to aggression that exists only because it has been strengthened by its consequences (Moyer, 1976).
cognitive impairment or poor social skills use aggression to 'make themselves heard'. Gaining control may also extend from the personal to the environmental and might be relevant to individuals living in restricted living environments, such as prisons or high security hospitals. The psychological reinforcement offered by feeling in control is an extremely powerful component in any human behaviour.

Bandura (1983) argues that all aggression could be considered to be instrumental in achieving a desired end. This more adequately addresses the issue of why some people choose to use aggressive or violent behaviour and others do not, as this implies functionality and motivation for the behaviour. Even someone who chooses to use aggressive behaviour (and receives reinforcement) in one situation would not necessarily choose to do so in another. Our responses to aversive stimuli are not restricted to the aggressive; we have, at minimum, the options of 'fight' or 'flight'. However, the persistent reinforcement of aggressive responses may restrict the opportunity for non-aggressive responses to become a part of the behavioural repertoire, particularly if behaviours are learned and reinforced through imitation processes.

### 3.1.3.2. Modelling

In some circumstances, aggressive behaviour may be acquired without reinforcement, although reinforcement is important for the observed behaviour to be performed spontaneously (Krahé, 2001). Bandura, Ross and Ross (1963) demonstrated the effects of modelling aggressive behaviour through the use of the Bobo doll paradigm. Young children were first exposed to short films in which adult models (considered to be influential to the young children) acted aggressively towards Bobo, a large inflatable clown, and then were observed in terms of their own frequency of aggressive acts towards a variety of toys during free play. Bandura et al. (1963) found that there were strong imitative effects, suggesting that individuals could acquire a wide variety of responses through exposure to the actions of influential models. Furthermore, experimental studies suggest that children are more likely to identify with and imitate a model which displays the power to control rewards, rather than one whose status is envied (Bandura and Walters, 1963). However, the extent to which these findings can be replicated in 'real world' settings, rather than the laboratory, have been criticised (Baron and Richardson, 1994).
Bandura's work provided the basis for a vast body of literature on the modelling of aggressive behaviour through media portrayals, particularly from individuals of high status or competence, or a well-liked character. Media influences are still commonly cited as one of the most powerful factors in the commission of violent offences, particularly those of high profile (e.g. the murder of Jodi Jones in Dalkeith, Scotland, June 2003 and the school massacre in Columbine, Colorado, April 1999). There is evidence that aggressive behaviour among children and adolescents increases after exposure to media violence (Browne and Hamilton-Giachritsis, 2005; Hogben, 1998; Paik and Comstock, 1994; Wood, Wong and Chacere, 1991), although less so for adults. This suggests that the level of influence of the model over the individual is specific, and co-occurring with susceptibility to social influence. Other factors which have been identified as facilitators of the modelling process from media violence are an individual's tendency to assign an aggressive meaning to a model's behaviour, the ability to justify the use of such behaviour, the observer's self-efficacy beliefs of carrying out the behaviour with the intended effects and the lack of portrayed negative consequences of aggressive behaviour within the media, such as victim harm, apprehension or punishment (Potter, 1999). The latter factor in particular may contribute to the perception that aggression is a common and accepted feature of social interactions (Krahe, 2001) and may desensitise the observer to victim suffering, where this is portrayed (Thomas, Horton, Lippencott and Drabman, 1977).

The relationship between aggression and viewing violence is complex. Observed behaviour is used according to an individual's goals and situational demands; it is not the case that individuals will observe aggressive and violent behaviour and subsequently re-enact the behaviour. Huesmann, Eron, Lefkowitz and Walder (1984) tracked the relationship between television viewing and aggressive behaviour longitudinally and found that television habits at age 8 years correlated with seriousness of criminal acts and convictions at 30 years of age. Huesmann's (1986) subsequent model of the long-term relationship between television viewing and

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7 Luke Mitchell, a fan of Goth rocker Marilyn Manson, murdered Jodi at the age of 14 years. In court, parallels were drawn between Jodi's injuries and Marilyn Manson's paintings of the murder of a woman with massive injuries to her face, breast and torso (BBC news, 21st January 2005).

8 Teenagers Dylan Klebold and Eric Harris killed 13 and injured another 23 people when they open-fired at Columbine High School before turning the gun on themselves. It is reported that they were considered to be social outcasts and seemed preoccupied with violence presented in the media, music and video games. They wanted to generate a new cult and were reportedly influenced by Hollywood films of the time (BBC news, 23rd April 1999).
violence represents a 'vicious circle' of the use of aggressive behaviour. He proposed
that children repeatedly observe adults solving interpersonal difficulties with the use
of aggressive behaviour, adopt aggressive problem-solving strategies from
characters with which they identify and rehearse aggressive solutions through the
use of fantasy and role play. If aggressive behaviour is reinforced then it is likely to
become habitual. The resultant interpersonal aggressiveness may then interfere with
social and academic success, producing frustration and increasing aggression. In
addition, the child or adolescent may become further alienated from their peers and
become less successful in school and will spend more time watching television.
Huesmann proposed that the new, easy aggressive solutions modelled on television
are likely to be incorporated into the behavioural repertoire, particularly if intellectual
capacities are, at this stage, limited. Furthermore, the lack of social interaction
restricts the opportunity for other, more pro-social, behaviours to be modelled and
learned.

However, the cause and effect relationship between viewing television violence and
using aggressive behaviour is not as clear as Huesmann proposed. Berkowitz (1970)
suggested that people who rely heavily on aggression for meeting their needs are
more influenced by media violence than are people who do not usually seek violent
solutions. Studies have also shown that extremely aggressive adolescents are most
strongly attracted to violence portrayed in media entertainment (Berkowitz, 1970;
Eron, 1963; Halloran, Brown and Chaney, 1969). Therefore, an individual's relatively
stable tendency towards aggressive behaviour would also appear to be important in
the consideration of the effects of media violence on aggressive behaviour. In a
series of experimental studies, Bushman (1995) explored this issue by exposing
individuals with different levels of trait aggressiveness to violent media depictions and
compared their subsequent aggressive affect and behaviour. In the first study,
Bushman found that high trait aggressiveness was linked to higher rates of exposure
to and stronger preference for violence in the media. In the second study, aggressive
individuals reported more hostility after watching a violent film than non-aggressive
individuals. In terms of observed behaviour after viewing a violent film, the aggressive
participants demonstrated (via inflicting a high intensity aversive noise towards an

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9 The televised execution of Dhananjoy Chatterjee in India in August 2004 led a series of
adolescents in different parts of the country to hang themselves, resulting in three deaths and
several others injured. The adolescents, ranging from 12 to 14 years of age, were described
as being "curious ... about how Dhananjoy would be hanged" and as re-enacting the
execution to show others (BBC news, 25th August 2004).
experimental confederate) significantly higher levels of aggression under conditions of provocation than their non-aggressive counterparts, although no such difference was found when participants were not provoked to an aggressive response. Bushman (1995) concluded that aggressive individuals have a preference for media violence which, in turn, reinforces their aggressive disposition.

Berkowitz (1962, 1964) also highlighted the importance of individual characteristics, specifically an individual's aggressive cue value, on the effects of media violence. Participants were first told that they were taking part in an experiment about the effects of stress on problem-solving ability. They were then asked to provide a written solution to a problem which was subsequently evaluated by a confederate. The confederate would administer a pre-determined range of electric shocks to the participant, depending on the level of experimental manipulation to provocation of aggression intended (i.e. 1 electric shock would indicate an excellent evaluation, through to 10 shocks indicating a very poor evaluation). The participant then viewed a short film depicting either a brutal prize fight (the media violence condition) or an exciting track race (the non-violence condition). Following this, participants were asked to evaluate the work of the confederate on a similar experimental project. Aggression was measured in terms of the number of electric shocks administered by the participant to the confederate. The results of these experiments provided support for the view that the frequency or magnitude of attacks directed against a particular person may be strongly influenced by his or her degree of association with previous or present anger instigators or with aversive events in general.

In a series of later studies, the aggressive cue value of the experimental confederate was manipulated in order to alter their degree of association with the witnessed film violence. For example, when the confederate was introduced to the participant as a 'college boxer' (as opposed to an academic college student), it was predicted that the confederate would elicit strong attacks from the participant if they had also been angered by the confederate during the first phase of the study (Berkowitz, 1965). Similarly, attempts were made to link the experimental confederate to the witnessed film violence by name (Berkowitz and Geen, 1966). One of the major characters in the boxing film was played by Kirk Douglas; the confederate was introduced to the participant as either Kirk Anderson (the violent cue) or Bob Anderson (the non-violent cue). As expected, the participants delivered the largest number of electric shocks to the 'college boxer' and 'Kirk Anderson' in these studies, respectively. These findings
suggest that even extremely subtle cues linking an individual with aggressive events or persons may be sufficient to elicit aggressive acts in another. Furthermore, the results suggest that one's perception that another intends to harm oneself in some way determines aggressive behaviour. The work of Bushman (1995) and Berkowitz emphasises the subjectivity of individual evaluations of interpersonal interactions. As such, individual cues for aggressive behaviour may not be readily observed.

There is evidence that the modelling of aggressive and violent behaviour has important implications for the subsequent development and manifestation of such behaviour in the observer, particularly among children and adolescents. This evidence seems to be so compelling that Browne and Hamilton-Giachritsis (2005) stated that parents who allow their children to view television violence are committing a form of child abuse. However, the relationship between modelling and violence is complex and dependent on a number of social and individual difference factors. It is not the case that all children and adolescents who view violence on television will use such behaviour and, therefore, care must be taken to avoid over-stating the importance of this direct relationship. It seems that the functionality of applying modelled aggressive behaviour is important with respect to the role of the model, which, in cases where imitation occurs, is likely to be perceived as gaining mastery and control over their social context.

3.1.4. The contribution of cognitive neoassociationism in understanding aggressive and violent behaviour

Berkowitz's (1989) cognitive neoassociationist model of aggressive behaviour drew on Dollard, Doob, Miller, Mowrer and Sears' (1939) frustration-aggression hypothesis, in which aggression is explained as the termination of a state generated as a result of interference in an individual's goal-directed behaviour. This interference was theorised to activate the desire to act aggressively against the source of the frustration, the consequence of which was aggressive behaviour. Clearly, there are situations in which frustration does not lead to aggression and in which aggression does not appear to arise from frustration. Consequently, Berkowitz (1989) proposed that negative affect, particularly anger, is an important mediator between frustration and aggression. The role of anger in aggression will be expanded upon in a later section and will be discussed here in the context of the cognitive neoassociationism model only.
Berkowitz (1989, 1993) proposed that a series of aversive stimuli, not simply restricted to frustration, give rise to negative affect (including anger), the intensity of which being dependent on the interpretation of intent. For example, unpleasant events perceived as deliberate or illegitimate would give rise to more anger and negative affect than those actions perceived as accidental. On the experience of negative affect, resulting from the unpleasant event, the impulsive reactions of ‘fight’ or ‘flight’ are evoked, which subsequently produce the emotional experiences of anger and fear respectively. A further series of cognitive processes then takes place, in which the context of the situation is evaluated and an emotional state attached to that memory. In such a way, an individual may become more sensitive and more attentive to aggression-related cues in the future, which may subsequently increase their aggressive response. Activating memories of past aversive events can also produce aggressive thoughts and feelings, which may result in aggressive behaviour even towards targets which are completely unrelated to the initial aversive event (Berkowitz, 1993).

Berkowitz’s model describes aggression as one of a series of responses to aversive stimuli, resulting from a blend of cognitive processes and affective states. Among novel situations, aggressive behaviour can be considered to be goal-directed, with the aim of removing the aversive stimuli. Such experiences are then integrated into an individual’s cognitive and behavioural repertoire, which results in the use of aggressive behaviour in similar situations which evoke the same emotional state. As such, motivation for aggressive behaviour may not always be evident to the observer or, indeed, to the actor. The cognitive neoassociationism model is a particularly useful framework for highlighting the mediating role of negative affect in aggressive behaviour, as well as the importance of the interplay between cognition, affect and motivation across situations. Furthermore, this model focuses on the interactive effects of context, environment, affect and cognition as antecedents to aggressive behaviour, and the importance of an individual’s perception and evaluation of context in the build-up to the perpetration of an aggressive act. However, this model tells us little about the individual characteristics of those who are more attentive to aggression-related cues and, therefore, increase the likelihood that aggressive or violent behaviour will be employed.
3.1.5. The contribution of social cognitive perspectives in understanding aggressive and violent behaviour

The importance of a person's cognitive appraisal of different situations can explain why different people vary in their response to what is apparently the same situation (Rutter, 1985). An individual with good cognitive processing skills will be able to experience the world and encode cues more efficiently than someone who is deficient in social information-processing skills (Bennett et al., 2005). Therefore, the more information that an individual is capable of processing, the more schemas the individual is capable of encoding and interpreting, which will subsequently influence the number of options available to respond to a given (aggressive) situation (Crick and Dodge, 1996). Indications of competent social information-processing skills are not restricted to interpersonal social skills, communicative (verbal and non-verbal) ability and pro-social behaviour, but also include the ability to take the perspective of and empathise with others (Antonowicz and Ross, 1994). Offenders frequently show deficits in social problem-solving skills, perspective taking, empathic ability and interpersonal communication (Bennett et al., 2005), indicating that social cognition appears to be an important factor in the aetiology of aggressive and violent behaviour.

Therefore, there is something about both the individual and social contexts that interact to produce a forum for aggressive behaviour. Social cognitive theory emphasises the internal state of the actor, the role of cognition in affecting behaviours, as the person evaluates situational variables such as the intent of another person's acts, one's own capabilities for carrying out an aggressive act, and the probable outcome of the act. As such, motivation for aggressive behaviour is implicated through an individual's cognitive appraisal of a given situation. The influence of aspects of social cognition on aggressive and violent behaviour will be discussed further in later sections concerning self-efficacy (3.2.1.), empathy (3.2.3.) and hostile attributional bias (3.2.4.).

3.1.6. The contribution of social interactionist perspectives in understanding aggressive and violent behaviour

Social interactionist perspectives of aggressive and violent behaviour emphasise the interpersonal context and functions of such, particularly the social processes of power and control (Blackburn, 1989). Developed under the broader rubric of social influence theory (Tedeschi, 1983), social interactionist perspectives place aggression in the
context of other forms of social behaviour designed to exert influence over others. As such, aggression is viewed as a coercive, instrumental behaviour within a response repertoire over which an individual has control (Krahé, 2001). Social interactionist perspectives differ from social learning and social-cognitive theories of aggression and violence mainly by specifying interpersonal compliance as the goal or reinforcer of interpersonal harm, rather than, for example, some individual state such as the relief of anger.

Tedeschi and Felson's (1994) social interactionist approach to aggression and violence views aggressive behaviour to be one of a series of coercive social actions, used when other forms of social influence are unsuccessful. Tedeschi and Felson's (1994) model places emphasis on the instrumental function and motivation of coercive actions, which are achieved through the use of compliance or harm in the form of intended threats, punishment or bodily force (Tedeschi and Felson, 1994). In the context of aggressive and violent behaviour, it is this communication of threats that punishment (or bodily force) will follow non-compliance (Blackburn, 1993) and the concomitant emphasis of the role of power within this coercive action that led Tedeschi and Felson (1994) to specify this form of interaction as coercive power. Compliance and harm are not considered to be the goal of coercive power, but rather the method through which the ultimate motivated goal is achieved.

Tedeschi and Felson propose that goals of coercive action fall into the three main categories of 1) controlling the behaviour of others, 2) restoring justice, and 3) asserting or protecting a positive identity. Such goals may be sought at times when an individual perceives that they are able to preserve their self-image or maintain authority (Baumeister, 2001), but also when self-esteem is lacking (Blackburn, 1993). An individual with low self-esteem may be efficacious at using coercive action to gain control over events in which they feel helpless. As such, a cost-benefit analysis is entered into in order to assess the risk of using coercive strategies, the potential positive and negative effects and the extent to which the actor is able to achieve the goal (based on previous experience and self-efficacy for aggressive or violent behaviour, for example) using the chosen coercive strategies.

Several theorists (Patterson, 1982; Tedeschi, 1983; Tedeschi, Smith and Brown, 1970) have looked at aggression in terms of coercive power, which involves the use of aversive stimuli, threats and punishments to gain compliance (Herbert, 1989),
although none propose such a comprehensive model as that of Tedeschi and Felson (1994). Coercive power is prominent in situations of conflict over rewards, threats to power or status (Babcock, Waltz, Jacobson and Gottman, 1993; Baumeister, 2001), or when harm is threatened or experienced (Blackburn, 1993). A related concept to coercive power is that of hostility, which Buss (1961) described as negative evaluations of others as expressed in attitudinal statements of resentment or mistrust. The term hostility is often used interchangeably with aggression and also involves the influence of others through the use of power. However, from the social interactionist perspective, dominant power exists independently of coercive power (Blackburn, 1998b). This would suggest that coercive power (and associated aggression) is some combination of power and hostility. This will be discussed further in section 3.5.8.

Tedeschi and Felson's (1994) social interactionist perspective views aggressive behaviour as just one of a range of coercive actions and gives agency to the actor in the election of coercive social influence. The concept of coercive social influence, or coercive power, is clearly related to the construct of dominance through its association with power and control. As has already been discussed in section 3.1.1.1., social dominance among animals is important in the regulation of aggression. Therefore, the interpersonal emphasis of the social interactionist model and its relationship to dominance suggests that the concept of coercive power may be important to consider in relation to individual differences and violence, specifically with regards to the contextual and motivational aspects of the behaviour. The extent to which coercive action may be a product of dominance and hostility will be discussed in section 3.5.8.

3.1.7. The contribution of developmental perspectives in understanding aggressive and violent behaviour

Developmental perspectives explore the relationship between childhood experiences, delinquency and adult violent behaviour. In particular, the family unit and peer relationships are considered to have influential roles in the development of aggressive and violent behaviour, above and beyond the contribution of genetic and biological factors. Childhood experience of physical, psychological and emotional abuse can impair cognitive, affective and pro-social behavioural development; some discussion of this is warranted.
3.1.7.1. Experience of physical abuse

Research indicates that one risk factor for violent behaviour in adulthood is being the victim of abusive violence as a child (Coie and Dodge, 1998; Englander, 1997). In a recent report published by the United States Bureau of Justice Statistics, more than 50% of women and 10% of men in jail said they had been physically or sexually abused (James, 2004). Milner and Crouch (1999) report that low self-esteem, anxiety, self-destructive behaviours and the inability to engage in trusting relationships with others are commonly reported effects of physical abuse in childhood, all of which impair general social functioning. One study which compared levels of aggression between physically abused and physically neglected (lack of food, clothing, supervision, etc.) children found that those who had experienced physical abuse demonstrated higher levels of aggression than both those children who had also been maltreated and a control group (Prino and Peyrot, 1994). The children who had experienced physical neglect showed high levels of withdrawal, whilst both groups of maltreated children scored significantly lower than the control group on measures of pro-social behaviour.

In addition to a lack of supervision, highlighted in the work of Prino and Peyrot (1994), factors such as inconsistent parental disciplinary practices (McCord, 1979) and harsh, physical punishment by parents are also strongly correlated with delinquency (Straus, 1991). In a 30-year follow-up Swedish birth cohort study (Hodgins et al., 2001), inadequate parenting (as indexed by social intervention during childhood) was experienced by 19.1% and 18.1% of the men and women, respectively. Among these cohort members, the risk of offending was increased by 1.39 for men and 2.09 for women and the risk for violent offending was increased 2.02 and 2.09 times, respectively. Other longitudinal research into the effects of aspects of parenting found that delinquent children repeatedly complained that their parents were unfair and non-objective in administering discipline (Glueck and Glueck, 1950; Glueck and Glueck, 1968; Haapasalo and Pokela, 1999), a complaint voiced much less frequently by non-delinquents. Inconsistent parenting yields inconsistent dispensation of reinforcement, such that socially desirable behaviours, if engaged in, will not be strengthened in the home environment. Furthermore, physical punishment provides a pattern to be modelled when children experience similar emotional states to the parent, such as frustration, and increases the probability of violent behaviour in the future (Straus, 1991).
In summary, childhood experience of physical abuse has important implications for future aggressive and violent behaviour, both during adolescence and into adulthood. Physical abuse, in itself, is insufficient to cause future violent behaviour, but the psychological impact on the individual and the subsequent dynamic of social consequences suggests that interpersonal difficulties in adulthood may arise, which could lead to violent behaviour.

3.1.7.2. Experience of psychological and emotional abuse

In addition to physical abuse, psychological and emotional abuse in childhood, characterised by rejecting, degrading, terrorising, isolating, mis-socialising (e.g. encouraging antisocial behaviour), exploiting, ignoring the child or restricting the child’s physical movements (Barnett, Miller-Perrin and Perrin, 1997) have been shown to lead to interpersonal maladjustment (e.g. insecure attachment to caregiver, low social competence and adjustment, few friends, difficulties with peers), intellectual deficits (e.g. deficits in cognitive ability and problem solving) and affective-behavioural problems (e.g. aggression, hostility, anger, self-abusive behaviour, pessimism and negativity) in the short-term (Miller-Perrin and Perrin, 1999), as well as extending into adulthood (Krahé, 2001). As with the example of childhood experience of physical abuse, the experience of psychological and emotional abuse alone is insufficient to explain aggressive and violent behaviour. However, the consequences of such abuse have been shown to lead to a range of difficulties, all of which can be associated with aggression.

Difficulties with forming secure attachments were found to be prevalent among a cohort of prisoners (Fonagy, 1999); the author implicated poor bonding with individuals and social institutions in the aetiology of criminal behaviour. Furthermore, in a series of studies exploring the relationship between attachment and antisocial behaviour, Meloy and Gacono (1998) found attachment deficits in 88% of their sample of conduct-disordered children, 86% of conduct-disordered adolescents, 71% of female and 91% of male prisoners with antisocial personality disorder. They suggested that, although chronic emotional detachment is not specific to antisocial individuals, it is necessary for the development of a pattern of chronic antisocial behaviour. Meloy (1992) proposed that secure attachment forms the basis for psychological identification with others (the precursor of empathy) and the internalisation of values (the precursor of conscience), both of which are important in
the regulation of aggression. The importance of empathic ability in the understanding of aggressive and violent behaviour is further discussed in section 3.2.3.

3.1.7.3. Peer association and rejection
Longitudinal research has found differences during early school years between future delinquents and non-delinquents in terms of impulsiveness, social skills and empathic ability (Farrington, 1991). Even at an early age, aggressive, belligerent children are unpopular and are excluded from peer groups (Hartup, 1983; Patterson, 1982; Olweus, 1978) and Coie, Underwood and Lochman (1991) contend that aggressiveness is the single most important reason for a child to be rejected by peers.

Contrary to the long-held assumption that previously non-delinquent children are 'led astray' by delinquent peers, it would seem that aggressive children rejected by their peers seek out and associate with other rejected children who share similar values and goals (Cairns and Cairns, 1991; Cairns, Cairns, Neckerman, Ferguson and Gariépy (1988). Farrington (1987) noted that delinquents who associate with delinquent peers over extended periods of time continue to offend into adulthood. However, whilst peer influences may be important for delinquents when it comes to property crime, there is little evidence for such a link when it pertains to adult violent offending (Farrington and Hawkins, 1991; Raine, 1993). As such, this finding suggests that 'peer pressure' is not important in the commission of violent offences, but, rather, the general level of alienation from (non-delinquent) peers during childhood and associated social and psychological difficulties.

3.1.7.4. Summary
Developmental factors highlight the complexity of violence and the dynamic relationship between the individual, social relationships and their environment in the aetiology of violent behaviour. It is clear that no single factor in isolation leads to aggressive and violent behaviour in adulthood, but that a combination of developmental risk factors and individual characteristics increase the likelihood that an individual may use violence in the future. One such individual characteristic that appears to be important in the development of violent behaviour is a lack of affection and warmth towards others, possibly resulting from childhood physical, psychological or emotional abuse and rejection from more socially-accepted peers.
3.1.8. The General Affective Aggression Model

The General Affective Aggression Model (GAAM; Anderson, Anderson and Deuser, 1996; Anderson, Deuser and De Neve, 1995) highlights the interplay of affective states and cognitive processes in the antecedents to the behavioural decision to use aggressive or violent behaviour. The GAAM proposes that individual difference factors (based on developmental and learning processes) and situational variables interact to influence aggressive behaviour through a series of psychological processes (Anderson et al., 1996). Initially, these individual difference and situational variables influence cognition, affect and arousal. An individual's physiological arousal may be increased and hostile thoughts and feelings may be induced, based on behavioural scripts. Consequently, these effects automatic or controlled cognitive appraisals of the situation and of one's emotional state, which can lead to the behavioural manifestation of aggression.

The GAAM draws on a variety of different theoretical perspectives, most of which have been discussed in earlier sections of this chapter (e.g. social learning, cognitive neoassociationism, social cognitive, developmental). Anderson and colleagues were most influenced by Berkowitz's (1989) cognitive neoassociationism model (section 3.1.4.), Huesmann's (1986) script model of media violence (section 3.1.3.2.) and Zillman's (1988) work on the psychophysiological aspects of aggressive behaviour, specifically the influence of arousal and cognitive processes in the formation of emotion and aggressive behaviour (this will be reviewed in section 3.2.2.). The GAAM is most similar to Berkowitz's (1989) cognitive neoassociationism model of aggressive behaviour, in that it emphasises individual schemas and scripts in the antecedents to aggressive behaviour. However, the GAAM differs in important ways. First, the GAAM emphasises three different routes in which aggression can be effected (cognition, affect, arousal), whereas the cognitive neoassociationism model emphasises general negative affect that has the potential to activate cognitions, affect and behaviour via spreading activation. Second, the GAAM indicates that immediate appraisal can be an uncontrolled, automatic process and so provides a framework within which to take account of impulsive aggression. Third, the GAAM does not link the cognitive, affective and arousal aspects as completely as Berkowitz's model links cognitions, affect and behaviour and, as such, emphasises the role of individual differences and situational factors in this process.
The GAAM provides a framework within which cognition, affect and arousal can influence aggressive behaviour to varying extents across a variety of individuals and situations, in that cognition may play more of an important role in classically 'instrumental' behaviours, whereas arousal and affect may play more of a role in 'expressive' aggression. Furthermore, the inter-relationship between cognition, affect and arousal can account for the aggressive scripts which a hostile person may have developed for reacting to events and an instrumentally aggressive person may also have generated for reaching goals through aggressive means (Bushman and Anderson, 2001). The difficulties of this dichotomous (instrumental-expressive) approach to understanding aggressive and violent behaviour (as discussed in Chapter 2), specifically in relation to multiple motives for such, can be resolved through this model. Instrumental aggression scripts may also include affective components, such as anger, which may mediate the decision to use aggressive behaviour. Similarly, expressive scripts may include instrumental planning (e.g. a revenge attack motivated by anger but planned meticulously). The GAAM takes account of both proximal and distal antecedents to aggressive and violent behaviour and therefore is able to more effectively take account of aggressive and violent behaviour with multiple motives and functions (Bushman and Anderson, 2001).

Anderson and colleagues have examined a variety of specific aggression-related independent variables to provide support for the GAAM perspective. A series of experimental studies have explored each of the cognitive, affective and arousal routes to aggressive behaviour. In a series of studies on the relationship between temperature (situational factor) and aggressive affect, Anderson et al. (1995; 1996) found that uncomfortable temperatures produced an increase in state hostility, but had little direct influence on the accessibility of aggression-related cognitions. Similarly, Lindsay and Anderson (2000) explored the interactional effects of cognitive cues, pain and trait hostility in the generation of state hostility. Participants were assigned to one of four experimental conditions with the presence or absence of pain (repeatedly elevating one's arm in an uncomfortable position for a specified time period) and aggressive cues (rating pictures of weapons or nature scenes). As predicted, trait hostility (individual factor) and pain (situational factor) both increased state hostility (affect), as indexed by a measure of such post-rating. The cognitive cues had little effect on state hostility.
Research into the effects of aggressive cues (e.g. violence in the media) found that such cognitive cues directly activated aggression-related thoughts, but had little impact on the affective route to aggression (Anderson, 1997; Anderson et al., 1996; Anderson, Benjamin and Bartholow, 1998). Using the same experimental design as in the exploration of the affective route, Lindsay and Anderson (2000) found that the weapon photos (situational factors) increased the overall level of aggression (as indexed by reaction time to aggression, escape or control words) in the pain condition. Furthermore, those with high trait hostility (individual factor) were more likely than those with low trait hostility to have aggressive thoughts (cognition) when exposed to aggression-related situational cues (situational factors).

Lindsay and Anderson (2000) explored the arousal route through a ‘fight or flight’ paradigm. The desire to either fight or escape can be interpreted as aversive states of arousal associated with anger or fear (Berkowitz, 1993) and, as such, one's accessible cognitions and efficacy beliefs influence the decision-making process (self-efficacy for aggressive and violent behaviour will be discussed further in section 3.2.1.). Using the same experimental design as described above, participants were asked to rate the extent to which they wanted to perform a list of 22 escape-related actions after rating the weapon or nature scenes. There were no clear effects of pain on aggression, but those with high trait hostility expressed a greater desire to escape even relatively neutral situations. This finding is interesting, because it suggests that the participants in this study who had high trait hostility also had low efficacy beliefs. Furthermore, given the relationship between high trait hostility and aggressive behaviour, this finding implicates an aggressive response through the inability to escape from a situation.

The GAAM highlights the necessity of the consideration of individual and situational factors in the study of aggression, not least because such an approach can inform applied interventions to reduce aggression in those more likely to use the behaviour (e.g. individuals with high trait hostility). Furthermore, this model illustrates the benefit of examining the effects of specific aggression-related independent variables from a cognitive/affective/arousal perspective (Lindsay and Anderson, 2000).
3.1.9. Summary of theoretical contributions towards understanding individual differences in violent behaviour

Violent behaviour is complex. Our understanding of why some people choose to use aggressive and violent behaviour to varying degrees can be increased by drawing on a variety of theoretical perspectives, which emphasise the importance of the interrelationship between interpersonal context, cognition, affect and motivation. The most fundamental of these explanations is the evolutionary, which emphasises individual contextual motivations in aggressive and violent behaviour, specifically in relation to the establishment of dominance and the negotiation of status and power hierarchies. Mentally disordered offenders encompass many of the biological correlates of violent behaviour although, as research into social dominance amongst animals suggests, interpersonal interactions and environmental stressors are likely to be more influential than biological factors alone in the aetiology of violence. In addition to impairments in affective and pro-social development, developmental perspectives also emphasise the role of cognitive impairment in violent behaviour, specifically in relation to the psychological impact and interpersonal difficulties that would appear to arise as a result of childhood abuse. The extent to which such abuse is then perpetuated in adulthood could be considered to be a function of applying modelled aggressive behaviour, although this is likely to be when an individual perceives that there is an opportunity to gain mastery and control over their environment. The function and maintenance of interpersonally aggressive and violent behaviour is well-accounted for within the social learning perspectives. A more context-specific approach is proposed in the social interactionist perspective, which emphasises the interpersonal and motivational aspects of the use of coercive power. The internal state of the actor is highlighted in social cognitive perspectives, which considers aggression to be motivated through individual cognitive appraisal of a given situation. The cognitive neoassociationism model integrates context, cognition, affect and motivation, through highlighting this interaction in the antecedents to aggressive behaviour. It is perhaps the General Affective Aggression Model that most effectively integrates and highlights the role of individual difference and situational factors, cognition, affect, arousal and motivation in the proximal and distal antecedents to aggressive and violent behaviour. Furthermore, both this and the cognitive neoassociationism model emphasise the importance of an individual’s perception and evaluation of an interpersonal context.
The roles of dominance, power, control and coercion in relation to interpersonally aggressive and violent behaviour are clearly implicated across several of the theories described above. In addition, individual cognition and affect influence the perception of the interpersonal context and the subsequent choice to use aggressive or violent behaviour. In the context of this thesis, these factors are considered to be of central importance in the exploration of why people choose to use aggressive and violent behaviour to varying degrees, as the interaction between interpersonal context, cognition, affect and motivation are emphasised in relation to individual differences. In the context of these factors, some specific individual differences factors, also related to interpersonally aggressive and violent behaviour, will be discussed in the following section.

3.2. Specific individual difference factors related to aggression and violence

The research described in section 3.1. suggests that aggressive behaviour is stable from childhood through to adulthood. Indeed, Olweus (1979) found that individual differences in aggressive behaviour appear by the age of 3 years and remain stable into adulthood. Other work has also supported the view of violence and aggression as a disposition, behaviour that has come to be consistent over time and situations (Botha and Mels, 1990; Moskowitz, 1982) through repeated use in specific cognitive and affective states (Blackburn, 1993). However, the extent to which aggression is stable across situations is less clear. Olweus (1974) reported that teacher and peer evaluations, criminal record and observed behaviour all provided consistent evaluations of aggression. However, in a meta-analysis of emotional and behavioural (including aggression) problems among children and adolescents, Achenbach, McConaughty and Howell (1987) found that correlations between ratings of aggression were strongest for similar observers working in similar settings, and concluded that behaviour was variable across situations. Almost everyone seems to show tendencies toward consistent behaviour with respect to some traits and across at least some situations (Baumeister and Tice, 1988; Tice, 1989) and knowledge of these can be useful in understanding and predicting an individual's reactions in a given situation. However, as was evidenced in the previous section, violence is complex. As such, it is unlikely that it can be solely attributed to either state or trait. In many instances situational factors seem capable of masking even strong individual dispositions (Dengerink, 1971; Taylor, 1970) and it would appear that both individual and situational factors are important determinants of aggressive and violent
behaviour. However, the individual's interpretation of any given situation is crucial to determining behaviour (Olweus, 1979).

Several individual difference factors have already been identified in the context of discussion on theoretical contributions towards understanding individual differences in violent behaviour. Four of these will be expanded upon below, selected due to their relevance to interpersonally aggressive and violent behaviour resulting from the interaction between individual cognition, affect and motivation in interpersonal contexts.

3.2.1. The role of self-efficacy in aggressive and violent behaviour
Developed within the framework of social learning theory, the theory of self-efficacy (Bandura, 1977; 1997) is based on the assumption that people's perceptions of their own capabilities influence how they act, their motivation levels and thought patterns, as well as how they react in demanding situations. As previously discussed in section 3.1.5. (social cognitive perspectives), self-efficacy is an important cognitive mediator of aggression, as it determines the extent to which an individual believes that an aggressive act can be performed, in relation to whether they believe that a specific outcome will occur. In this respect, self-efficacy is the cornerstone of personal agency (Bandura, 2001, 1992a), influencing both personal and interpersonal action. When reinforced psychologically (as discussed in section 3.1.3.1.), agency can create a feeling of being in control, an extremely powerful component in any human behaviour.

A sense of competence to carry out an action can be acquired by mastery and vicarious experiences, verbal persuasion or physiological feedback (Bandura, 1977, 1992b; Schwarzer, 1995a). In such a way, self-efficacy is conceived of not as a domain- or situation-specific cognition but, rather, as a trait-like (but changeable) general sense of confidence in one's own capabilities to master different types of environmental demands (Jerusalem and Mittag, 1995). People with a high sense of perceived self-efficacy tend to interpret demands and problems more as challenges than as threats or subjectively uncontrollable events, whereas individuals who are characterised by low perceived efficacy are prone to self-doubts, anxiety arousal, threat appraisals of events and perceptions of coping deficiencies when confronted with difficult situations and demands (Jerusalem and Mittag, 1995). So, whereas high perceived self-efficacy for aggressive behaviour maintains aggression, low
general self-efficacy increases the likelihood that challenges in life will be perceived as threats and, in accordance with the principles of negative reinforcement, will increase an aggressive response (Lips-Wiersma, 2000). Furthermore, people who gain a sense of pride or self-esteem from aggressive or violent behaviour may act out violently in order “to experience the self-satisfaction that is associated with acting aggressively” (Parke and Slaby, 1983; p. 556). Hoffman, Ireland and Widom (1995) argue that, for males, violent crimes such as robbery and rape often represent attempts to feel masculine and powerful, when they are otherwise unable to legitimately fulfil societal expectations for the traditional male role. This notion of an inter-dependent relationship between power, self-efficacy and aggressive and violent behaviour will be discussed in a later section.

Perceived self-efficacy affects aggression through motivational, cognitive and affective intervening processes, of which cognition and affect also serve as intervening influencers (Bandura, 1992a) of aggressive behaviour. One such affect that has been found to be associated with aggression is the emotion of anger; some elaboration of this relationship is warranted.

3.2.2. The role of anger in aggressive and violent behaviour

The relationship between anger and aggression was established in Chapter 2 (in relation to ‘instrumental’ and ‘expressive’ aggression) and also in discussion of Berkowitz’s (1989) cognitive neoassociationism model (section 3.1.4.). Anger has also been explored in the context of a number of other theoretical perspectives not previously discussed (e.g. Averill, 1993; Novaco 1997, 1993; Novaco and Renwick, 1998), some of which will be described in the present section.

Anger is a strong state of arousal and is consciously connected to the proximate events (e.g. aggressive behaviour) associated with its activation (Novaco, 1993). As such, anger is state-dependent, although the relative frequency and intensity with which an individual experiences anger may be elevated in the “anger-prone” (Novaco and Welsh, 1989; p.57). Although the extreme experience of anger is not specifically pathologised, “inappropriate, intense anger or difficulty controlling anger” is one diagnostic criterion for borderline personality disorder (American Psychiatric Association, 1994; p. 654). The emotion of anger is not inherently dysfunctional (and, as a ‘normal’ emotion, serves adaptive functions), so can not be causally related to each incidence of aggression. Similarly, the absence of anger does not guarantee
that aggression or violence will not occur (Novaco, 1994). However, whilst anger is neither necessary nor sufficient for aggression, it is a significant activator of aggression, which is otherwise regulated by inhibitory controls (Novaco and Renwick, 1998).

Averill (1993) argues that anger is a socially-constructed account that people give to legitimise aggression. Anger both excuses aggression by suggesting that the person was not in full control of their emotions and justifies aggressive behaviour as a response to the target's misdeeds or the perception of having suffered an injustice (Averill, 1993; Zillmann, 1988). In such a way, the roles of cognition and emotion (specifically anger) become inter-dependent in the aetiology of aggressive behaviour, specifically 'angry aggression' (Averill, 1993; Novaco, 1993; Novaco and Renwick, 1998; Zillmann, 1988), which occurs in response to anger-inducing conditions, such as insults, physical attacks or personal failures. Certainly, when in conversation about justification for the perpetration of an aggressive or violent act, one of the most common responses from both offenders and non-offenders is "because I was angry".

In a series of laboratory experiments, Zillmann (1979) found that when participants were provoked to anger, further arousal from other sources, such as exercise or heat, was misattributed and subsequently intensified aggression. Zillmann (1988) argues that cognitive functioning capable of controlling violent or aggressive action under circumstances where levels of excitation are within the normal range loses its power when excitation (specifically relating to anger) climbs to extreme levels. In such a way, an individual who regularly chooses an aggressive response would only engage in violent actions under sufficient provocation, but this is likely to be whenever a cognitive deficit is engendered (Zillmann, 1988). Similarly, those who do not regularly engage in violent or aggressive behaviour would choose an alternative (non-violent) strategy for dealing with provocation. This emphasises the social-cognitive principle of reciprocity, in which states cognitively attributed to others foster mutual behaviours in the actor (Beck, 1976; Novaco, 1993), such that perceived threat or aggression generates an aggressive response relative to the level of that perceived in the other.

Novaco’s proposed conceptual framework for anger contains cognitive, behavioural and physiological domains. Subjectively-identified anger results from the highly automatic cognitive labelling of arousal. The presence of anger dyscontrol as a salient characteristic of violent offenders is commonly recognised (Berkowitz, 1986;
Novaco, Ramm and Black, 2001; Novaco and Renwick, 1998; Welsh and Gordon, 1991), although research indicates that violent offenders often appear to 'over-label' arousal so that their predominant emotional experience is anger (Polaschek and Reynolds, 2001). Although some violent offenders have difficulty with accessing and labelling emotions (Marshall, Hudson, Jones and Fernandez, 1995), they may also find justification in their use of violence through invoking anger in the antecedents to the behaviour (Averill, 1993; Polaschek and Reynolds, 2001). In such a way, an individual may also misattribute the intentions of another as being intentional, malevolent and unjustified (Ferguson and Rule, 1983) and, as a consequence, fail to accurately process the emotional state of the victim. The relationship between anger and empathic ability was highlighted in work by Pithers (1999), who found that negative emotional states, such as anger, may actually impair usual empathic skills. Like anger, a lack of empathy is also recognised as having a disinhibiting effect on violent and aggressive behaviour.

3.2.3. The role of empathy in aggressive and violent behaviour

Recognition of the emotional experiences of others has important implications for the aetiology of violence and aggression within the learning, social cognitive and developmental perspectives. Empathy is a set of reactions – emotional and cognitive – triggered by an external event (Vaknin, 2003) and is commonly associated with prosocial behaviour (Williams, 1990). According to the principles of negative reinforcement, an individual’s aggressive behaviour would not be reinforced if they were able to empathise with the emotional experiences of the victim, as the consequences of their behaviour would invoke an aversive stimulus, the negative emotions of physical pain of another. Consequently, an empathic individual would not perceive aggressive behaviour as an appropriate strategy to avoid noxious stimuli, as the consequences produce yet another such event. This suggests that observing suffering may help to inhibit aggression (Renfrew, 1997). The results of many studies conducted with both children and adults document the occurrence of such effects (Baron, 1971a; Baron, 1971b; Baron, 1979; Baron and Richardson, 1994; Milgram, 1963; Miller and Eisenberg, 1988).

However, just as anger can influence cognitive social information-processing ability, anger also affects empathic ability. Baron (1971a; 1971b; 1979) conducted a series of experimental studies using a ‘pain meter’ (a meter with labels referring to the amount of pain experienced by another person when he or she receives an
unpleasant stimuli, e.g. an electric shock), which was controlled by the researcher and systematically varied so as to suggest contrasting levels of pain and discomfort on the part of the recipient (Baron and Richardson, 1994). Study participants were either angered (through being subjected to rude remarks and negative evaluations of their work on a previous task) or not angered (received neutral evaluations) by a confederate and were then given the opportunity to aggress against this person. Victim pain cues were experimentally manipulated via the 'pain meter'. In conditions of low anger arousal, Baron (1971a; 1971b) found that victim feedback helped to reduce aggression, according to the principles of negative reinforcement. However, when in a state of high-anger arousal no such empathy effect was found (Baron, 1979). This is consistent with Bandura's (1973) hypothesis that pain feedback acts as a maintaining condition, since it indicates success in the use of aggression (Baron, 1983; Baron and Richardson, 1994; Renfrew, 1997). Therefore, in states of high-anger arousal, taking on the emotions and experiences of the victim may serve to positively reinforce aggression or violence and subsequently increase such behaviour.

However, both the work of Baron (1971a; 1971b; 1979) and Bandura (1973) are concerned with specific victim empathy, rather than the general ability to identify and assume the emotional experiences of another. Whilst these studies demonstrate the interrelationship between empathic ability and anger on aggressive behaviour, they tell us little about individual differences in relation to perspective taking and empathic concern. In a meta-analysis of the literature on aggression and empathy, Miller and Eisenberg (1988) found that experimentally-manipulated conditions of empathy did not generally have any effect on aggressive behaviour. However, they found that questionnaire measures of empathy revealed significant inverse relationships between aggression and empathy and recommended that researchers consider both affective and cognitive aspects as potential inhibitors of aggressive behaviour.

In a review of the social psychological literature, Davis (1983) identified four distinct definitions of empathy, two of which are relevant to the study of aggressive and violent behaviour. Davis (1983) identified 'perspective taking' as the cognitive component and 'empathic concern' as the affective component of empathy, although the cognitive component would seem to be most clearly related to the inhibition of aggression (the other definitions were 'fantasy' and 'personal distress', the abilities to identify with fictitious characters and share the negative emotions of others,
respectively; Richardson, Hammock, Smith, Gardner and Sigo, 1994). In a self-report study of North American university students, Richardson et al. (1994) found that 'perspective taking' was negatively correlated with more measures of aggressive tendency (e.g. verbal aggression, irritability, assault) than 'empathic concern' and that general empathic ability was associated with constructive, non-aggressive responses. In a later experimental study, Richardson, Green and Lago (1998) added further support to the relevance of perspective-taking ability in the regulation of aggression. Participants could either respond aggressively or non-aggressively (by sending positive or offensive messages to a confederate) in two different interpersonal contexts (i.e. the target either increased or decreased provocation during the interaction). Perspective taking was related to the inhibition of an aggressive response and also to the facilitation of non-aggressive responding. Richardson et al. (1998) also found that individuals high on dispositional perspective taking were more likely to choose a non-aggressive response if the target's insults increased in aggressiveness throughout the interaction. The results of these studies are of interest to this thesis because they demonstrate a consistent and predictable relationship between a personality characteristic (perspective taking) and aggressive behaviour in the context of strong situational demands (Richardson et al., 1998).

As has already been noted in section 3.1.1.6., cognitive impairment is relatively common among offenders; therefore, it would not be unreasonable to assume that perspective-taking ability may also be impaired in some violent offenders. If a perpetrator of an aggressive act is unable to recognise the emotional experiences of others, then the victim feedback would neither serve to reduce the behaviour nor positively reinforce future behaviour. In order to distinguish between the effects of reinforcement or cognitive deficit, the context-specific motivation for, or function of, the behaviour would need to be explored. In some cases (for example, sadistic offenders), part of this motivation may be to instrumentally inflict injury and pain on others, regardless of empathic ability. As such, a lack of empathic concern, or general disaffection of others (possibly a product of childhood physical, psychological or emotional abuse or peer rejection, as discussed in section 3.1.7.), may also be relevant. As highlighted in section 3.1., antisocial personality disorder has been associated in the research literature, in a variety of ways, to aggressive and violent behaviour. Indeed, one diagnostic criterion for antisocial personality disorder is a "lack of remorse, as indicated by being indifferent to or rationalising having hurt, mistreated, or stolen from another" (American Psychiatric Association, 1994; p.650).
Although this criterion does not facilitate analysis of the direct relationship between empathic concern and level of aggression or violence used, it does implicate a general lack of empathic concern as a relatively stable characteristic of an individual who has committed antisocial acts. Such a person may be very well able to identify the cognitive and affective experiences of a victim, but the function of the interpersonally aggressive or violent behaviour out-weighs victim feedback.

The role of empathy in interpersonally aggressive and violent behaviour is not straightforward. There is some experimental work to suggest that victim feedback of pain reduces subsequent aggressive behaviour within the same interpersonal context. However, experimental studies of aggressive and violent behaviour can not be expected to replicate 'real world' behaviours. Certainly, the roles of motivation and function of the behaviour are not fully accounted for within such studies. It would appear that an individual may be highly empathic of the painful experiences of another person, but this, in itself, could further reinforce aggressive and violent behaviour. The function and motivation for interpersonally aggressive and violent behaviour would appear to mediate empathic concern for the victim.

### 3.2.4. The role of hostile attributional bias in aggressive and violent behaviour

Hostile attributional bias refers to an individual’s habitual tendency to interpret ambiguous stimuli as hostile or aggressive (Krahé, 2001). When individuals perceive ambiguous actions by others as stemming from malevolent intentions, they are much more likely to retaliate than when they perceive the same actions as stemming from other motives (Baumeister, Stillwell and Wotman, 1990; Johnson and Rule, 1986). As such, individuals who have a tendency to perceive hostile intent on the part of others even when it is really lacking are more likely to be aggressive than those who do not so consistently attribute hostility to others’ intentions. Hostile attributional bias has important implications for social cognitive models of aggressive and violent behaviour (as discussed in section 3.2.1.), which emphasise the cognitive evaluation of others’ intentions in the antecedents to an aggressive act. If an individual is cognitively disposed to attribute hostility in interpersonal contexts then they will also do so in broader social contexts (Krahé, 2001).

Dill et al. (1997) conducted two studies designed to explore the effects of aggressive personality (as defined by scores on a range of self-report aggression and
interpersonal measures) on hostile expectations and hostile perceptions in personally irrelevant social interactions. In a story completion task designed to represent the participants' (university psychology students) expectations concerning people in general, Dill et al. (1997) found that aggressive personalities can lead people to expect more aggression even when they are not personally involved in the social interactions. In a second study, participants observed four video clips of aggressive, ambiguous and non-aggressive dyadic interactions, rating each of the actors on a series of adjectives (e.g. angry, hostile, cooperative, friendly, excited, quiet). Dill et al. (1997) reported that aggressive personality was positively related to hostile perceptions of these observed dyadic interactions, with a stronger effect of aggressive personality on the aggressive and ambiguous situations. These studies provide some evidence for the stability of individual differences in hostile expectations and perceptions across situations, but specifically for those in which the individual is not actively involved. It would not be unreasonable to expect that those individuals with an “aggressive personality” would also more readily attribute hostility to others’ intentions when interacting interpersonally. Indeed, as discussed in section 3.1.8., Lindsay and Anderson (2000) found that those who scored high on trait hostility also expressed higher levels of state hostility in experimental conditions. As such, trait hostility may not only influence the routes to aggressive and violent behaviour, but may also reduce the mediating effects of cognitive and affective appraisal, resulting in the disinhibition of aggressive responses (Lindsay and Anderson, 2000).

Several studies have explored the effect of hostile attributional bias on aggression in other situations. Dodge and Coie (1987) explored differences between boys who were rated by their teachers as being high in ‘reactive’ aggression (or ‘angry’ or ‘expressive’ aggression; reacting to perceived provocation), high in ‘proactive’ aggression (or ‘instrumental’ aggression; performed in the absence of provocation) or relatively non-aggressive, and found that those who were high in ‘reactive’ aggression were more likely than those high in ‘proactive’ aggression to perceive another’s intentions as hostile when they were in fact ambiguous. These results lend some support to those of Dill et al. (1997), in that it would seem that cognitive disposition to hostile attribution can co-occur with anger-proneness (Krahé, 2001). Further research among a group of male young offenders (Dodge, Price, Bachorowski and Newman, 1990) also found that hostile attributional bias was related to ‘reactive’, rather than ‘proactive’, aggression, as well as undersocialised conduct disorder (characterised by physical violence and a lack of social and
affective bonds to others) and a more extensive history of interpersonally violent offences.

In a study of interpersonal relations among patients in a high security hospital, Blackburn (1998a) found evidence to suggest that persistent lawbreaking by some mentally disordered offenders represented attempts to master a social environment perceived as hostile and threatening. Furthermore, Blackburn (1998a) hypothesised that those offenders with extensive criminal histories approach the world with a well-developed hostile-dominant interpersonal style. As such, frequent criminal behaviour may represent an ongoing attempt to control and dominate others - often in a hostile manner - in the social environment which they perceive as hostile. This may be the most direct way of solving immediate conflicts and, as has been discussed in section 3.1.3.1., aggressive behaviour often receives immediate reinforcement for the aggressor.

There is evidence to suggest that a cognitive hostile attributional bias may increase the likelihood of an aggressive response in interpersonal situations. The interaction between cognition and affect may further increase this response. In addition, hostile attributional bias would appear to be an important individual difference factor in general criminality and so may also have important implications for understanding interpersonal violence at the individual level.

3.2.5. Summary of specific individual difference factors related to aggression and violence

Several specific individual difference factors which serve to cognitively or emotionally mediate aggressive and violent behaviour have been identified. Together, these factors make some progress in explaining not only why some people choose to use aggressive and violent behaviour to varying degrees, but also why individuals are aggressive or violent in some situations, but not in others. The literature on self-efficacy highlights how aggressive and violent behaviour can be employed as a method of securing a feeling of control and power. The research on empathy and hostile attributional bias indicate that individual differences in the cognitive processing of social information are relevant to the understanding of individual differences in interpersonally aggressive and violent behaviour. Furthermore, affective differences are implicated through the research presented on anger and its association with cue misattribution. These specific individual difference factors can increase and decrease
an individual's tendency to use aggressive and violent behaviour, although they tell us little about the manifestation of this. The following section will explore the relationship between combinations of individual characteristics and the resulting violent behaviour.

3.3. Typological approaches to personality, aggression and violence
People clearly vary in the extent to which they are aggressive or violent and a single act of aggression is not necessarily indicative of an aggressive disposition but, rather, repeated aggressive behaviour over time and setting (Blackburn, 1998b). As was discussed in section 3.1.8. on the General Affective Aggression Model, a disposition towards aggressive behaviour (such as anger-proneness and hostile attributional style) makes violence more likely to occur in a given situation, but is not sufficient for a violent act, as many violent crimes are committed by individuals who are not habitually violent (Blackburn, 1993). Therefore, people who use violence are also likely to be heterogeneous in terms of personality. One way in which this heterogeneity has been organised is through the application of classificatory approaches, designed to discriminate between personality characteristics of aggressive and violent people. This section outlines two of the principal approaches to the classification of perpetrators of violent behaviour.

3.3.1. Undercontrolled and overcontrolled aggressors
Megargee (1966, 1971) was the first to propose a distinction between the personalities of violent offenders. He described overcontrolled and undercontrolled aggressors as having either unusually weak or excessively strong internal restraints against aggression. Megargee (1966) proposed that mild and moderately aggressive individuals are undercontrolled and are typical of aggressive personalities associated with low inhibitions against aggressive behaviour. These people might be typically 'anger-prone' (as discussed in section 3.2.2.) as, for the undercontrolled aggressor, aggression is a behavioural pattern that becomes the habitual response when the person is angry. In contrast, the overcontrolled individual has extremely rigid inhibitions to aggression, so they rarely, if ever, respond with aggression. However, the overcontrolling of aggressive responses among these individuals results in a 'pressure cooker effect', whereby aggression builds up over time until the point at which it exceeds their inhibitions and results in a higher level of violence than that displayed by the undercontrolled personality. This hypothesis was supported in Megargee's research with four groups of assaultive and non-violent young offenders,
in which boys with a history of extreme assaultingiveness were rated as more controlled and showed greater control and conventionality on personality tests than moderately and non-violent young offenders.

Blackburn (1968) found support for Megargee's hypothesis in a study of adult violent offenders. Two groups were created: the 'extreme assaultives' group contained those convicted of murder, manslaughter or attempted murder, and the 'moderate assaultives' included offenders who had wounded with intent to cause serious bodily harm, or who had maliciously wounded or assaulted. Consistent with Megargee's hypothesis, 'extreme assaultives' were significantly more introverted, conforming and overcontrolled and less hostile than their counterparts. Furthermore, their extremely aggressive behaviours had occurred after repeated real or perceived provocation.

Blackburn (1968, 1971) further developed these constructs of personality in relation to violent offenders and proposed two overcontrolled and two undercontrolled types. A sample of mentally disordered offenders completed the Minnesota Multiphasic Personality Inventory (MMPI) and analysis of the profiles produced four clusters of aggressive types. The two undercontrolled types were 1) typical of classical concepts of psychopathy\(^\text{10}\) (Cleckley, 1976), and 2) characterised by a highly-deviant profile with abnormal scores on most clinical scales, whilst the two overcontrolled types were defined by 1) a defensive 'hypernormal' pattern, and 2) a marked social introversion. These distinct personality patterns have been found to be prevalent among both mentally disordered and non-mentally-disordered violent offenders more generally (Blackburn, 1975, 1986; Henderson, 1982; McGurk, 1978) and are commonly described as 'primary psychopaths', 'secondary psychopaths', 'controlled or conforming' and 'inhibited' (Blackburn, 1993) respectively. Blackburn's original (1971) 'primary psychopath' ('psychopathic') group was characterised by poor impulse control, high extraversion, outward-directed hostility, low anxiety and few psychiatric symptoms. The 'secondary psychopath' ('paranoid-aggressive') group also manifested high impulsivity and aggression, but also high levels of psychotic symptoms. Blackburn's overcontrolled offenders were classified by the 'controlled-repressor' ('controlled or conforming') and 'depressed-inhibited' ('inhibited') groups. The former was characterised by high impulse control and defensiveness and low levels of hostility, anxiety and psychiatric symptoms. The second overcontrolled

\(^{10}\) Cleckley (1976) emphasised egocentricity and impulsive self-gratification in the context of a callous disregard for the feelings of others.
group also had low levels of impulsivity, but was also low on extraversion, had high levels of depression and internalised hostility.

Consistent with Megargee’s original hypotheses regarding violent behaviour among overcontrolled and undercontrolled aggressors, Blackburn (1984) found that 52% of ‘primary psychopaths’ and only 8% of the ‘inhibited’ group were found to have a history of repeated violence. Furthermore, among samples of mentally disordered offenders, ‘primary’ and ‘secondary psychopaths’ were found to have earlier criminal careers than ‘controlled’ or ‘inhibited’ types, the ‘primary psychopath’ group had more convictions for violent crimes and the ‘secondary psychopaths’ had more convictions for acquisitive offences (Blackburn, 1975; 1998b). ‘Primary’ and ‘secondary psychopaths’ have also been found to describe themselves as more dominant in both threatening and affiliative settings, but the difference between the psychopathic and non-psychopathic groups are more apparent in threatening situations (Willner and Blackburn, 1988). Anger has been found to distinguish between the two psychopathic groups, with ‘secondary psychopaths’ describing the most intense anger in response to verbal or physical threat (Blackburn and Lee-Evans, 1985).

Further evidence to support this personality taxonomy has been presented in a series of studies (Henderson, 1982; 1983; Holland and Holt, 1975; Widom, 1978; McGurk and McGurk, 1979), which found that Blackburn’s four classificatory types were also generated from generic, non-offence-specific groups of prisoners. These results suggest that this typology is not specific to mentally disordered violent offenders, but may actually represent personality types typical of socially deviant and criminal behaviour more generally, as would be evidenced in general prison populations. However, the ‘inhibited’ profile seems to be the most characteristic of violent offender populations (Henderson, 1983) and may contribute towards the understanding of some violent acts. This group is characteristic of individuals who are socially withdrawn, depressed and likely to perceive others’ intentions as hostile, individual difference factors which were discussed in the context of the aetiology of violent behaviour earlier in this chapter. This overcontrolled group would also be likely to demonstrate ‘explosive’ aggressive and violent behaviour, with the potential for more serious consequences (e.g. murder) of their behaviour than those in other groups.

At present, there is some evidence to suggest that violent offenders may differ along a continuum of undercontrolled-overcontrolled, with most at the polar ends of the
continuum. As such, Megargee's strict typology of violent offenders is unable to fully account for all, but can help to conceptualise the personality of some violent offenders. Undercontrolled violent offenders are likely to be more persistent and habitual criminals, whereas overcontrolled offenders are likely to engage in infrequent, highly violent episodes. Blackburn's 'inhibited' profile would appear to be the most relevant to the study of aggression and violence among mentally disordered offenders, and also reflects the role of trait hostility in this behaviour, as discussed in sections 3.1.8. and 3.2.4.

3.3.2. Toch's typology of motivational concerns

Toch considered that the examination of the context of violent behaviour could expose the central motives and concerns of violent men (Toch, 1969) and, as such, his research provides revealing insights into the perceptions and motives of violent individuals. Toch aimed to make sense out of dispositions to aggression and to classify people in terms of their tendency to use violent behaviour. From a series of interviews with 71 violent offenders a systematic picture of each interviewee's approach to violent behaviour was formed. A process of grouping and content analysis deductively generated preliminary definitions which were then conceptually refined (Toch, 1992). These definitions were then applied in a formal analysis of the sample, with each individual being assigned to a category which best reflected the theme of their approach to violent behaviour. Consequently, Toch (1969) proposed a typology of violent behaviour based on two super-ordinate constructs - self-preserving strategies and approaches that de-humanise others - which were associated with ten motivational concerns. These will be described briefly within the two broad domains of interpersonal motives in sections 3.3.2.1. and 3.3.2.2..

Toch acknowledged difficulties in generating an exhaustive categorisation which reflected personality and aggression. In sampling violent offenders and exploring their individual characteristics related to violence, other qualities were (and always will be) neglected. Whether or not these other qualities would be important in order to facilitate the distinction between categories is unknown. An additional theoretical difficulty which Toch faced was with the classification of individuals who approached violence with multiple motivations. As has already been established in this chapter, violence is complex. Therefore, it is unrealistic to assume that the heterogeneity of both personality and violence could be condensed into a few categories.
Nevertheless, Toch's typology of motivational concerns provides a useful insight into the motivational aspects of and individual differences in violent behaviour.

### 3.3.2.1. Self-preserving strategies

Toch (1992) described self-preserving strategies as those designed to bolster and enhance the person's ego. This includes defending one's reputation as using aggressive behaviour, defending oneself from perceived physical danger, the use of violence as a 'normative' strategy, and compensating one's self-image through the use of violence. An example of such a strategy would be the 'self-image promoting' type; this is characterised by someone who works hard at impressing others, promotes a fearless presentation and initiates conflicts to demonstrate that he can not be taken advantage of. Toch proposed that the 'self-image promoter' attempts to disguise his contradictory interior, someone who is fearful of being seen as weak or insignificant. A similar type is the 'self-image defender', who would be particularly sensitive (and aggressively reactive) to the perception of slights or insults from others. Both of these 'self-image compensating' types implicate threat to self-esteem in the aetiology of violent behaviour.

An additional example of the self-preserving strategies is the 'pressure-removing' type. Toch described this as characteristic of someone with limited interpersonal skills who resorts to violence to cope with situations when other non-violent strategies are ineffective. The violence is explosive and functions to remove an aversive stimulus. Among his sample of violent offenders, Toch reported that the 'self-image compensating', 'reputation-defending' and 'pressure-removing' types were the most frequent motivational approaches to violent behaviour (41%, 15% and 12%, respectively). It is of interest to this thesis that these types are motivated by a desire for social dominance ('self-image compensating' and 'reputation-defending') and status, as well as for the removal of an aversive stimulus when other strategies are ineffective ('pressure-removing').

### 3.3.2.2. Approaches that de-humanise others

The second group of motivational concerns emphasises the self-centred nature of the violent offender and their manipulation of others. One such approach is 'exploitation', or the manipulation of others for their own ends. Toch proposed that violence occurs when other people react against this exploitation. This is most similar to Tedeschi and Felson's (1994) social interactionist perspective, as discussed in section 3.1.4.
A more instrumental form of de-humanisation is that of ‘bullying’, which Toch described as the pleasure obtained in the exercise of violence and terror. The ‘bully’ uses violence to secure power, obtain goods and services, and keep others in their place or at a distance. Violence is employed in a variety of situations because the means are more important than the ends.

The behavioural equivalent to the ‘pressure-removing’ type is the ‘cathartic’, characterised by the release of accumulated emotions with little significance of the victim of the attack. The ‘cathartic’ type learns to become aggressive so as to cheer himself up, so satisfying a personal need. Therefore, there may be little in terms of interpersonal interaction prior to the violent act, as the antecedents to this behaviour are distal, rather than proximal.

The final motivational concern is characterised by the ‘self-indulging’ type. This person has little concern for the needs of others and is unable to assume the views and desires of others. They approach interpersonal interactions with the assumption that other people are there to cater for their needs and create situations which perpetuate their view that the world is unfair. Toch (1992) presented the example of a man who is “concerned when his wife finds him with another woman; but even when, as far as he knows, it’s been his transgression, he becomes very upset at her being annoyed about this” (p. 163). As such, violence is used as the penalty for non-compliance, as opposed to a method for securing compliance (as in the ‘exploitation’ type).

3.3.2.3. Summary

Toch’s typology provides some useful indicators of the motives and functions of violence and suggests salient common personality characteristics within each typology. In particular, Toch proposed that individuals employed violent behaviour in reaction to a perceived threat to self-esteem, as a coping strategy to remove an aversive stimulus, in the expression of negative emotion, in the manipulation of others and in order to secure power or goods. However, he acknowledges difficulties with validity and reliability of such a typology, as such a classification system generates ambiguity and does not appear to be suitable for individuals who use violence for multiple purposes (Toch, 1992). Furthermore, there is no evidence that this typology has been generated with additional samples.
Toch's motivational concerns not only highlight that there are a variety of motivations and functions of violent behaviour, but also that there are individual differences within these motivations. The nature of the typology and its failure to account for offenders who use violence in a multi-functional way also highlights the multi-faceted, dynamic nature of violence as well as that of those who choose to use such behaviour.

3.3.3. Summary of typological approaches to personality, aggression and violence

The purpose of typologies is to discriminate between characteristics of aggressive and violent people through the differentiation of subtypes in order to establish clinically relevant and organising principles (Millon and Davis, 1998). Typological approaches facilitate shared understanding of discrete differences in motivations and functions of violent behaviour.

The typological approaches to personality, aggression and violence described in this section offer explanations for motivation and function of the behaviour, although vary in the extent to which they can account for individual and situational variables. Blackburn's taxonomy is the most useful in relation to this thesis, particularly with regard to offering some prediction of the nature of violent behaviour in relation to specific individual characteristics. As was evidenced with Toch's (1992) motivational concerns, typological approaches categorise aggressive and violent behaviour within inherently problematic conceptual domains. As Gordon Allport said: "All typologies place boundaries where boundaries do not belong. They are artificial categories ... each theorist slices nature in any way he chooses, and finds only his cuttings worthy of admiration" (quoted in Loranger, 1999). It would appear that many of the different facets of personality that are involved in these typologies are merely part of a continuum of normal personality functioning (Widiger and Lynam, 1998). Therefore, in order to more fully account for the dynamic between individual differences and violent behaviour, a dimensional approach may be more useful.

3.4. A dimensional approach to personality and violence – the Five Factor Model

Dimensional approaches to personality and violence facilitate an understanding of the degree to which an individual is characterised by specific personality traits which may increase the likelihood that an individual will manifest aggressive or violent behaviour. As was discussed in section 3.1.8. on the General Affective Aggression Model, one
example of such a trait is hostility, for which Lindsay and Anderson (2000) provided significant support for its association with aggressive behaviour. This section will focus on a specific model of personality and its relationship to violent behaviour.

McCrae and Costa's (1989) Five Factor Model (FFM) is considered to be one of the most validated and comprehensive models of personality (Blackburn, 2003; Wiggins and Pincus, 2002). It stipulates that five bipolar, orthogonal dimensions provide a comprehensive description of personality, with each of the five broad domains containing specific facets, or traits. The domain of 'Extraversion' assesses an individual's tendency towards positive emotions and sociability. 'Agreeableness' assesses interpersonal relationships and strategies; individuals who score high on this factor tend to be trusting, straightforward and empathic, whereas those who score low tend to be arrogant, manipulative and unconcerned about others. The 'Conscientiousness' domain explores individual differences in the ability to plan and complete tasks and also encompasses the extent to which impulsivity is characteristically controlled. 'Neuroticism' assesses emotional adjustment and stability, whilst 'Openness to experience' refers to an individual's interest in culture and to preferences for new activities and emotions. McCrae and Costa (1989) suggested that the FFM could be used to provide a general description of individuals' emotional, interpersonal, experiential and motivational styles.

Miller et al. (2003) used the Five Factor Model to facilitate understanding of how personality is related to antisocial behaviour and aggression, using a community sample of young adults. They examined relations between three facets of the FFM – 'Agreeableness', 'Conscientiousness', 'Neuroticism' – and several self-report measures of antisocial behaviour, including indices of aggression. Results indicated that low 'straightforwardness' (an individual's tendency to be honest and sincere, versus manipulative and deceptive), low 'compliance' and low 'deliberation' (the ability to think and consider consequences of one's behaviour before acting) were most strongly associated with antisocial behaviour and aggression. As such, an antisocial and aggressive individual could be described as manipulative, deceitful, oppositional, competitive and having a tendency to act without thinking. This finding is of interest to this thesis, especially in light of the research described so far in this chapter. Tedeschi and Felson's (1994) social interactionist perspective (section 3.1.6.) views aggression as a coercive action, designed to manipulate others in order to gain power. Miller et al.'s (2003) finding in relation to 'straightforwardness' adds
support to this hypothesis. Biological research described earlier in this chapter (e.g. section 3.1.1.2.) implicated impulsivity as a correlate of violent behaviour among prisoners. This would support Miller et al.’s (2003) finding that, among their sample of young adults, antisocial behaviour was correlated with low ‘deliberation’. Furthermore, their finding that low ‘compliance’ was associated with antisocial behaviour suggests that an individual may use aggression as a method of maintaining and securing social dominance, as discussed in section 3.1.. Miller et al. (2003) highlighted the association between the personality dimension of ‘Agreeableness’ - of which ‘straightforwardness’ and ‘compliance’ are facets - and aggression. As ‘Agreeableness’ is the FFM’s interpersonal domain, this suggests that an interpersonal element of personality may be an important factor when exploring antisocial behaviour and aggression.

3.4.1. Personality disorder and violence
Throughout the literature exploring the relationship between personality and violent behaviour, violence is commonly viewed as a consequence of relatively enduring deficiencies or dysfunctions described as personality disorders. As has been evidenced from Blackburn's research, psychopathy has been frequently associated with violence. Although psychopathy does not exist as a diagnosis within the Diagnostic and Statistical Manual – IV, psychopathic personality disorder currently exists as a legal construct within the Mental Health Act 1983. Psychopathic Disorder is defined as “a persistent disorder or disability of mind which results in abnormally aggressive or seriously irresponsible conduct on the part of the person concerned” (p.2). As such, mentally disordered offenders classified under the legal construct of Psychopathic Disorder have proven to be of interest to researchers investigating aggressive and violent behaviour. Blackburn (1998b) considered concepts of personality deviation or disorder to be both defensible and necessary in the explanation of violent behaviour and argued that psychopathy “embodies the relationship between abnormal personality and aggression” (p.50). An understanding of the psychological attributes of offenders with Psychopathic Disorder might, therefore, be expected to illuminate the contribution of personality characteristics to violence.
3.4.2. Psychopathy

Hare’s (1991) Psychopathy Checklist – Revised (PCL-R) is considered to be the most comprehensive measurement tool in the assessment of antisocial behaviours and personality traits among offenders (Tengstrom, Grann, Lanstram and Kullgren, 2000). The PCL-R is a trait and behaviour checklist covering twenty historical and clinical items, including impulsivity, shallow affect, lack of empathy, early behavioural problems and poor behavioural controls. The items are rated through clinical interview and file review, with a total score representing an individual’s clinical construct of psychopathy, as defined by Hare (1991). Historically, two underlying stable and correlated factors have emerged (Harpur, Hare and Hakstain, 1989). The first factor measures a selfish, callous and remorseless use of others and contains most of the personality characteristics considered central to the traditional clinical conception of the disorder (i.e. Cleckley’s 1976 definition of egocentricity and impulsive self-gratification in the context of a callous disregard for the feelings of others). Factor two measures social deviance as manifested in a chronically unstable and antisocial lifestyle; items on this factor tend to be scored on the basis of explicit behaviour rather than inferred traits (Harpur, Hart and Hare, 2002). Although the PCL-R only includes one item directly relevant to aggression ('poor behavioural controls'), it correlates with prior history of violence and prediction of violent criminal recidivism (Blackburn, 1998b), therefore suggesting that psychopathy traits are conducive to aggressive and violent behaviour.

More recently, Cooke and Michie (2001) argued that a three-factor model of psychopathy should be adopted, on the basis that clinical accounts of psychopathy have identified interpersonal, affective and behavioural facets. Through a series of empirical studies using the PCL-R, Cooke and Michie identified three factors of psychopathy: 1) arrogant and deceitful interpersonal style, 2) deficient affective experience, and 3) impulsive and irresponsible behavioural style. Contrary to previous theoretical positions suggesting that disruptive behaviour and violent recidivism among people scoring high on the PCL-R is due to a lack of empathic ability, Cooke and Michie suggested that further research might focus on the role that an arrogant and deceitful interpersonal style plays in the aetiology of violent behaviour. This emphasis on interpersonal style is also consistent with Blackburn’s (1998a) research, which suggested that many, if not most, of the traits distinguishing offenders refer to characteristic styles of relating to others; assertiveness, hostility, aggression and adversarial or anti-authoritarian attitudes all describe ways of
managing social interactions. Furthermore, Miller et al. (2003) highlighted the association between the Five Factor Model interpersonal domain of 'Agreeableness' and aggressive behaviour.

3.4.3. Psychopathy and violence

Hart and Hare (1994) investigated the relationship between psychopathic (prisoners) and non-psychopathic (university students) personality using the Five Factor Model (FFM), and found psychopathy to have negative correlations with 'Agreeableness', 'Conscientiousness', 'Openness to experience' and, to a lesser extent, 'Neuroticism'. Hart and Hare claimed that this was consistent with clinical descriptions of an individual with Psychopathic Disorder as being cold-hearted, irresponsible, cynical, dominant and demonstrating a relative lack of emotional distress (Cleckley, 1976).

Further research into the relationship between the FFM and psychopathy (Harpur, Hart and Hare, 2002) replicated a similar profile of psychopathic personality, although only the negative correlation with 'Agreeableness' achieved significance. Harpur et al. (2002) found that psychopathic individuals scored highly on the 'antagonistic' pole of 'Agreeableness', indicating that they display personality facets of suspicion, selfish egocentricity, arrogance and tough-mindedness or callousness. Furthermore, the prototypical characteristics of individuals who score high on the PCL-R combine several dimensions of the FFM that are typically hostile and aggressive, as manifested in their violent and abusive behaviour, their cold-heartedness and callousness, as well as their contemptuous and cynical attitudes.

The majority of research concludes that a negative relationship with the FFM factor 'Agreeableness' is the most prominent personality dimension related to psychopathy (Blackburn, 1998b). Considering the relationship between psychopathic disorder and violence, these findings may suggest that violence is also negatively associated with the 'Agreeableness' dimension. The research supports Miller et al.'s (2003) proposal of an association between violence and the interpersonal domain of personality. It is not altogether surprising that psychopathy is characterised by the interpersonal dimension of 'Agreeableness', as psychopaths present an indifference to effects of their behaviour on others, a lack of affectional bonds and manipulation or exploitation of others (Blackburn, 1998b). Therefore, it appears that interpersonal style may be particularly relevant to the understanding of both psychopathy and violence.
3.4.4. Summary of the Five Factor Model approach to personality and violence

Explorations of the relationship between personality and violence using the Five Factor Model (FFM) have focused on the investigation of personality disorder and its correlates, rather than a direct examination of aggressive and violent behaviour. The research indicates that the interpersonal domain of the FFM is most strongly correlated with aggressive behaviour. In particular, a low score on this interpersonal 'Agreeableness' scale would be characteristic of someone who was arrogant, manipulative and unconcerned about others. This reflects discussion in earlier sections of this chapter, specifically regarding violence as a coercive action (Tedeschi and Felson, 1994; section 3.1.6.) and as a correlate of difficulties with the psychological identification with others and the internalisation of values (Meloy, 1992; section 3.1.7.2.). As such, an examination of an individual's interpersonal style would facilitate an understanding of the proximal antecedents to an aggressive or violent act. It has been hypothesised that an arrogant and deceitful interpersonal style, characterised by selfishness, callousness, manipulation of others and a lack of regard for others may be associated with violent behaviour.

3.5. An interpersonal theoretical approach to understanding aggressive and violent behaviour

The literature which has been presented so far suggests that interpersonal characteristics and an individual's interpersonal style are both important determinants and mediators of aggression and violence. One comprehensive and empirically-based framework for describing interpersonal functioning is the Interpersonal Circumplex, developed from interpersonal theory. Created by Freedman, Leary, Ossorio and Coffey in 1951, interpersonal theory is concerned with social behaviour, specifically the way in which an individual deals with and relates to others. This framework has been developed over the last fifty years in the fields of clinical, social and personality psychology, psychiatry, mathematics and geometry, to enable the representation of human interpersonal behaviour within two-dimensional space organised around the axes of Dominance (agency) and Love (communion) at a continuous level. This model is known as the Interpersonal Circumplex and has been demonstrated to locate personality and behavioural variables within the same conceptual space (Gifford and O'Connor, 1987; Gifford, 1991; Myllyniemi, 1982).
3.5.1. Interpersonal theory

Interpersonal theory originated in concerns with understanding group psychotherapeutic activities and aimed to produce a system able to measure change in personality structure before and after therapeutic interventions at a psychiatric clinic (Leary, 1957). The emphasis was upon overt behaviours in dyads and groups, rather than upon inferred internal events and resulted in a meaningful way of construing human transactions (Wiggins, 1985). Research into personality thus far had been dominated by Freud, Jung, Rank and Reich, but it was the work of Harry Stack Sullivan and Erik Erikson who had the greatest influence on the development of interpersonal theory. Sullivan believed that personality is an enduring pattern of recurrent interpersonal situations that characterise the duration of an individual human's life. Along with Horney (1945) and Fromm (1947), Sullivan believed that the motive force of personality is the avoidance of anxiety, which they considered to be an interpersonal phenomenon. Accordingly, an individual will employ a variety of interpersonal techniques in a variety of situations, in order to avoid derogation and rejection by others (or indeed by oneself). These techniques may be overt, conscious or covert, and represent a multilevel organisation of behaviour. The integration of these interpersonal techniques, be they for the avoidance or minimisation of anxiety, is personality. This multilevel theme was incorporated into the interpersonal theory of Leary, Ossorio and Freedman, which viewed “the human being [as] a complex, multilevel pattern of conflicting motives and behaviours” (Leary, 1957; p. 41).

Sullivan (1953) also presented three modes of experience throughout the lifespan. The final of these was the 'syntaxic', the extent to which interpersonal relations are 'consensually validated', or the degree to which a person understands the communicated message of another and is able to make inferences about the thoughts and actions of another. When two people agree on the basis upon which their relationship exists and they are able to accurately infer states to the other with their agreement, then they are said to be communicating in the syntaxic mode. Sullivan states that this is a very difficult mode to achieve and, therefore, there is always some degree of anxiety across interpersonal relationships for each individual. The extent to which the anticipation of derogation or rejection elicits minimal anxiety or extreme dread depends on individual differences.

Erikson had developed a social conception of human nature within the broad framework of Freudian libido theory (1950), bridging the gap between psychosexual
theory and social behaviour. Erikson incorporated interpersonal language into the developmental theory of Freud, producing eight stages of the life cycle from oral sensory through puberty to maturity, with corresponding nuclear conflicts. The resolution of each conflict could only be achieved through the integration of the previous conflicts. Erikson's developmental timetable therefore presented a list of sixteen interpersonal resolutions (a conflict between two at each stage of the life cycle), namely: 1) Trust-vs-Mistrust, 2) Autonomy-vs-Shame, 3) Initiative-vs-Guilt, 4) Industry-vs-Inferiority, 5) identity-vs-Role diffusion, 6) Intimacy-vs-Isolation, 7) Generativity-vs-Stagnation, 8) Integrity-vs-Disgust/Despair. The Kaiser Foundation researchers considered that sixteen categories of interpersonal behaviour represented a basic level of categorisation for the interpersonal schemas of clinicians (Wiggins, 1985), so Erikson's sixteen interpersonal variables constituted the principal structure of the first model of interpersonal behaviour.

Leary's interpersonal theory was based on one assumption about the motivation of emotional behaviour; "Personality is the multilevel pattern of interpersonal responses (overt, conscious, or private) expressed by the individual. Interpersonal behaviour is aimed at reducing anxiety. All the social, emotional, interpersonal activities of an individual can be understood as attempts to avoid anxiety or to establish and maintain self-esteem." (Leary, 1957; pp.15-16). For Leary, avoidance of anxiety and the maintenance of self-esteem organised the conceptual domain of interpersonal behaviour. This can be also be understood from a social learning perspective, in that behaviour is motivated by the avoidance of an aversive stimulus (anxiety) or the gaining of something beneficial (self-esteem). However, as has already been discussed earlier in this chapter, violence does not appear to neatly fit into one of two motivational categories, and an individual can have mixed motives for using aggressive or violent behaviour. As such, in light of what we now understand about violent behaviour, it might be that Leary's interpersonal theory could be re-conceptualised to explain this behaviour in terms of a blend of the avoidance of anxiety and the establishment or maintenance of self-esteem. This would more readily fit with a script/schema approach to understanding the antecedents to violent behaviour, as was described by Anderson et al.'s (1995; 1996) General Affective Aggression Model (section 3.1.8.). Leary represented the importance of the avoidance of anxiety and the maintenance of self-esteem by interpersonal variables depicted as vectors in two-dimensional space around the conceptual 'axes' Love-
Hate and Dominance-Submission, which have remained consistent throughout the development of interpersonal theory.

Setting the stage for a new generation of interpersonal theorists, Carson's influential *Interaction Concepts in Personality* in 1969 integrated the Leary circumplex with the clinical, social and experimental psychology of the time, specifically emphasising impression management and social exchange (Wiggins, 1996). This provided a turning point in interpersonal theory, signifying a move away from the specific application of the theory to a psychiatric context and towards a generic approach exploring interpersonal behaviour within the context of personality and its broader application to clinical utility.

Traditional, Sullivanian interpersonal theory centred on the exploration of interpersonal behaviour in terms of the transactions between two or more people (Kiesler, 1996b): the basis for a scientific study of personality was to be found in the things that people do to each other in interpersonal transactions. This approach necessitated the study of the actions and reactions of two or more people in relation to each other; an interactional interpersonal theory (Kiesler, 1996a). A proportion of the emerging research of the 1970s, through to the present day, employs this theoretical perspective in the study of interpersonal behaviour; however, the remaining body of research employs an individualistic interpersonal theoretical stance, exploring a person's actions in the presence of other humans (Kiesler, 1996a).

The individualistic branch of interpersonal theory developed largely through the contribution of social psychological theories and the integration of them into the interpersonal. As with the transactional, individualistic interpersonal theory is grounded in the theoretical orientation of the originators of the system: that an individual's abnormal behaviour is the result of the inability to detect the less successful aspects of their interpersonal communication (Kiesler, 1996b). Through the integration of traditional interpersonal, social and clinical psychological theories, the exploration of the individual's interpersonal behaviour has been made possible, whilst taking account of the effects that self (action) and others (reaction) have had on their experiences and how this has shaped their interpersonal style. The individualistic interpersonal theorists take the unit of the interpersonal trait, a tendency to respond selectively to certain classes of environmental stimuli.
(Freedman, 1985), and apply knowledge about that characteristic style of interacting with others in order to predict the behaviour of an individual in any given environment. The unifying concepts across the transactional and individualistic interpersonal theoretical perspectives, the roles of agency and communion, are central to an understanding of any individual's interaction with others and their environment: agency and communion (Wiggins, 1991), control and affiliation (Kiesler, 1996b), love and dominance (Leary, 1957), organise the domain of interpersonal behaviour and transactions.

3.5.2. Agency and communion

Agency and communion theory is based on the assumption that there is a basic duality in human existence (Bakan, 1966). Psychological illness is viewed as the result of personal unhealthy responses or traits, rather than as a loss of balance or equilibrium (Lips-Wierma, 2000). Themes of agency and communion as significant motivational themes underlie changes across the life-span (McAdams, Hoffman, Mansfield and Day, 1996), forming a dynamic tension through which individuals struggle to make choices and transitions incorporating both self- and other orientations (Lips-Wierma, 2000). Agency refers to "existence of the organism as an individual" (Lips-Wierma, 2000; p. 14), manifest in actions of the self; self-protection, self-expansion, self-assertion, mastery of the environment and striving for power (Wiggins, 2003). In contrast, communion refers to the "participation of the individual in some larger organism of which the individual is part" (Lips-Wierma, 2000; p.14), manifest in union, openness, love and intimacy. Within the interpersonal paradigm, the agentic and communal challenges of life are reflected in the character and quality of an individual's pattern of dyadic interactions (Wiggins, 2003). Together, agency and communion define the universe of content of interpersonal transactions (Wiggins, 1996), and have been conceptualised as two types of personality traits intrinsic to the individual and stable parts of each person's make-up (Lips-Wierma, 2000).

By operating within a conceptual two-dimensional - agency/communion - theoretical framework, interpersonal theory assumes that the two organising structures are unrelated (orthogonal) to each other. Typically, agency is represented through the assured/dominant to unassured/submissive/passive continuum and communion on an intimacy/love/union/warmth to a remoteness/hate/dissociation/coldness/hostility continuum. However, individuals are able to be both highly agentic (e.g. dominant) and communal (e.g. friendly); interpersonal theorists would explain this combination
of traits in terms of someone having an extraverted characteristic interpersonal style, and would be placed at a 45° angle to the 'axes' of agency and communion. So, whilst the concepts of agency and communion are considered to be theoretically distinct from each other, human interpersonal (social) behaviour is organised in terms of the two concepts and can be explained in terms of 'blends' of the two. However, despite the original 'caveat' of those at the Kaiser Foundation in the 1950s - that interpersonal theory seeks to explain only social behaviour - it is possible that antisocial acts may also be socially meaningful behaviour motivated by concerns about agency and communion (Blackburn, 1998a).

3.5.3. The Interpersonal Circumplex

The Interpersonal Circumplex (IPC) was introduced as a structural model of dimensions of human interpersonal behaviour (Leary, 1955), able to theoretically explore both 'normal' and 'abnormal' behaviours along the same continuum (Leary, 1957). This would encompass the "normal, adjustive aspects of behaviour as well as abnormal or pathological extremes" (Leary, 1957; p.26), the abnormal behaviour resulting from the individual's inability to detect the less successful aspects of their interpersonal communications (Kiesler, 1996b). However, another major initiative of the IPC was the attempt to represent interpersonal traits psychometrically and to conceptualise both effective and disordered behaviour in terms of individual differences (Wiggins, 1985).

Guttman (1954) first used the term 'circumplex model' to refer to a particular kind of non-restrictive correlation pattern having a circular arrangement. Leary (1957) identified the advantages of employing a circumplex model and was the first to apply the model to personality traits as an alternative to exploratory factor analysis, with its rotation associated to simple structure. One advantage of the circumplex model of representation of interpersonal variables is that it provides an explicit conceptual definition of the universe of content of interpersonal behaviour (Wiggins, 1979). Therefore, any behaviour that is considered to be interpersonal in nature must be capable of being represented as a vector in the two-dimensional space of the interpersonal circumplex. Another advantage of this model is that it is able to take account of 'fuzzy sets' (Wiggins, 1985) of behaviour, i.e. those without clear boundaries, for which a probabilistic approach would be more appropriate than a categorical one. The interrelationships between the variables of the circumplex model, following a circular order, would permit the location of behaviours for which
definition is contextual and non-classificatory, but for which there is a gradual but specifiable transition from membership to non-membership (Acton and Revelle, 2002). This continual circumplex structure is ideal for behaviours for which there are no clear boundaries, such as violence and aggression, which are, to a large extent, socially constructed terms.

One Interpersonal Circumplex model is presented in Figure 3.1. Whilst the structure and the themes of the domains remain the same, there are discrete semantic variations across interpersonal approaches. The terms presented in Figure 3.1. are from the most recent conceptualisation of the Interpersonal Circumplex (Horowitz, Alden, Wiggins and Pincus, 2000) and will be referenced throughout the remainder of this thesis. The letter combinations (i.e. PA, BC ... NO) reflect the continual nature of the circumplex.

*Figure 3.1: The Interpersonal Circumplex*

The Interpersonal Circumplex reflects the variety of interpersonal purposes expressed by human beings in their relationships with each other, and was conceptualised in terms of the three principles of circumplexity: 1) the principle of
circumplex structure contends that variables which assess interpersonal behaviour will be arranged around a circle in two-dimensional space (Leary, 1957); 2) the principle of complementarity requires that some degree of bi-polarity be observed within the structure, in that the further the position of a given behaviour from the centre of the circle, the closer the opposing behavioural attribute will be to the centre. For example, a very dominant behaviour (which would feature at the top of the circle) could not also be a very submissive behaviour (at the bottom of the circle); a high score in one area must have a low score in the polar opposite. In short, an interpersonal behaviour and its most probable reaction are said to be complementary; 3) the principle of vector length states that the longer the vector from the centre to the outer circle, the more deviant the behaviour, and is also an index of characteristic profile variability (Wiggins, 1979).

3.5.4. Application of the circumplex model to interpersonal theory

Leary and others at the Kaiser Foundation developed a checklist of interpersonal adjectives compiled from trait lists extant in the psychological literature up until 1950. The resulting 344-item Interpersonal Checklist (LaForge and Suczek, 1955) corresponded to the dimensions of the interpersonal circumplex, permitting the mapping of self- and other reported interpersonal behaviour onto the two-dimensional circular structure. In order to make the checklist more clinically useful, LaForge and Suczek (1955) condensed the measure to 128 items which, when mapped onto the interpersonal model, formed a conclusive circumplex structure. The items combined into sixteen scales arranged in a circular order, with the vertical axis representing dominance ("Domineering/Controlling") – versus – submission ("Nonassertive"), and with the horizontal axis represented by affiliation ("Self-sacrificing") – versus – hostility ("Cold/Distant"). Responses to the checklist formed approximated circular profiles by imposing a conventional Euclidean metric and employing the terms of a Fourier series, orthogonal functions used to approximate circular or periodic phenomena in the physical sciences (LaForge, 1985). Until the mid-1970s the Interpersonal Checklist was the only method of psychometrically assessing personality within an interpersonal theoretical framework.

In order to test the utility of the circumplex model as applied to interpersonal behaviour, Wiggins (1979) used 567 of the original 800 Kaiser Foundation interpersonal adjectives to create a bipolar taxonomy of the interpersonal domain. A conceptual difficulty of Leary's interpersonal system was the lack of bipolarity
between vectors that appeared opposite each other on the circle. Leary's model (see Figure 3.2) conceptualised bi-polarity of interpersonal behaviours within the same octant, with each of the eight domains being represented by two opposing scales of the Interpersonal Checklist. For example, 'managerial-autocratic' and 'docile-dependent' are four of the scales designed to represent two of the octants of Leary's model: bi-polarity consists of a reflexive continuum within the same conceptual space. Whilst there is some degree of bi-polarity in opposing octants (e.g. 'self-effacing-masochistic' and 'competitive-narcissistic' are the respective opposing quadrants to the above examples), this is principally semantic (originating from the work of Sullivan): Leary's model does not permit the representation of a range of interpersonal variables along a continuum of 'normally distributed' behaviour. This is best explained in contrast to Wiggins' model (see Figure 3.3), based on a series of eight theoretical dimensions within the circumplex structure; the spatial polar opposites also reflect the psychological (in addition to semantic) opposites, permitting the representation of contrasting interpersonal behaviour within circumplex space.

Figure 3.2: Circumplex bi-polarity within Leary's model

Figure 3.3: Circumplex bi-polarity within Wiggins' model

Wiggins' resulting taxonomy was the Interpersonal Adjective Scales, based on an explicit structural model (Guttman, 1954) that follows from a facet analysis of cognitive categories of social perception (Foa and Foa, 1974). On the basis of both theoretical and psychometric considerations, a set of eight 16-item scales were developed as marker variables of the principal vectors of the interpersonal system, enabling the classification of any interpersonal trait descriptor by establishing its location within the circumplex space (Wiggins, 1979). Wiggins had demonstrated the utility of the application of the circumplex model to interpersonal theory and had replaced LaForge and Suczek's (1955) Interpersonal Checklist with the theoretically representative Interpersonal Adjective Scales (Wiggins, 1979). In doing so, Wiggins presented a structurally sound model for the representation of interpersonal
behaviour that was to instil confidence in other interpersonal theorists of the time and contribute to the resurgence of interest in and subsequent development of interpersonal theory.

With the development of the interpersonal circumplex model came a move away from the psychodynamic interpretation of behaviour that had influenced Leary and others at the Kaiser Foundation, evident in the subsequent interpretations of the circumplex model that rejected the notion of levels of circumplexity based on the conscience. Predominantly, developmental attention was paid to the relationship between personality as a product of the interaction between self, others and environment and the dimensions of the interpersonal circumplex. Whilst the notion of levels of consciousness was not brought to bear in the development of interpersonal theory, many aspects of Leary's original theory still form the basis of interpersonal theory today. These include the function of interpersonal behaviour (as an avoidance of anxiety and maintenance of self-esteem), as well as the central idea that when we interact with others we attempt to elicit behaviours that are compatible with our preferred definition of an interpersonal situation with respect to the dimensions of control (agency) and affiliation (communion) (Wiggins, 2003). In addition to this, we tend to elicit oppositional behaviours when we operate within the realm of agency (e.g. dominance invites submission and submission invites dominance), whereas our behaviours within the conceptual domain of communion elicit similar behaviours (e.g. friendliness invites friendliness, hostility invites hostility). This can be evidenced from previous research described in section 3.1.1.1., in which animals strive for social dominance by eliciting submission in others. Furthermore, developmental research suggests that adolescents who perceive that they have been rejected from society have little regard for society and, in effect, reject the society which they perceive has rejected them (e.g. section 3.1.7.3.). In each case, the use of interpersonally aggressive or violent behaviour can be implicated through the elicitation of oppositional or similar behaviours. These original aspects of interpersonal theory are common across all subsequent theoretical perspectives within the interpersonal domain; the differences between them lie in the influences of a range of applied psychological theories.

Interested in the cognitive aspects of interpersonal transactions, Horowitz (1979) asked clients presenting for psychotherapy to list difficulties that they experienced in their relationships with others. This formed the basis for the Inventory of Interpersonal
Problems (IIP), constructed within an interpersonal theoretical framework. Factor analysis of the IIP yielded three dimensions of interpersonal behaviour; 1) the degree of psychological involvement between one and another, 2) whether the involvement was positive (friendly) or negative (hostile), and 3) the extent to which one intends to control the other (Horowitz, 1979). The second dimension here corresponds to Leary's interpersonal circumplex axis of love-hate and was reflected behaviourally through social interactions, compliance and intimacy at the positive and aggression towards others at the negative. Horowitz's third dimension reflects Leary's dominance-submission axis, demonstrated by assertiveness and aggression towards others versus submissive behaviour. It would appear that the emotional component (factor one) serves as a circumplex mediator between positive/negative involvement and the amount of power one needs to feel over another.

3.5.5. Interpersonal space

During the past forty years the circumplex model has been applied to an increasing number of conceptual domains: personality (McCrae and Costa, 1989; Schmidt, Wagner and Kiesler, 1999), emotions (Russell, 1997), facial expressions (Myllyniemi, 1982), the development of new psychometric instruments (Alden, Wiggins and Pincus, 1990; Blackburn and Renwick, 1996), interpretation of clinical phenomena (Blackburn, 1998a) and the understanding of vocational choices (Tracey and Rounds, 1997). In terms of measuring what those at the Kaiser Foundation initially set out to do (measure interpersonal dispositions, or characteristic ways of interacting with each other), the fit between the circumplex model and interpersonal theory is so close that it is hard to distinguish the theory from the model (Wiggins, Phillips and Trapnell, 1989). However, there have been many claims to interpersonal space over the last twenty years, and much less is known about the relationship between new circumplex structures and the interpersonal dispositional space developed through interpersonal theory (Wiggins, 2003). Recent advances in statistical methods of generating and evaluating circumplex structure (e.g. Acton and Revelle, 2002) have demonstrated that the 'spaces' that the 'new' phenomena to be explored within an interpersonal theoretical framework occupy do correlate with the space originally developed for interpersonal behaviour. Phenomena such as interpersonal problems (Alden, Wiggins and Pincus, 1990), covert reaction tendencies (Kiesler, Schmidt and Wagner, 1997) and emotions (Plutchik, 1997) have all been found to share the same conceptual space as interpersonal behaviour. The implications for the application of interpersonal theory to other forms of interpersonal behaviour are widespread.
3.5.6. Application of the Interpersonal Circumplex to other conceptual spaces

The principal area to which the Interpersonal Circumplex (IPC) has been applied within an interpersonal theoretical framework is to the field of personality assessment. Once a coherent model for the assessment of interpersonal behaviour was in place (Wiggins, 1979), attentions were turned to the relationship between the interpersonal space of dispositions and standardised psychometric tests of personality.

McCrae and Costa (1989) explored the relationship between the Five Factor Model (FFM) and the IPC, and found that the circumplex was defined by the 'Extraversion' and 'Agreeableness' dimensions of the FFM. This finding was also replicated by Trapnell and Wiggins (1990) and Wiggins and Pincus (2002), who gave recognition that 'Nurturance' and 'Dominance' of the IPC are conceptually similar and correspond closely to the 'Extraversion' and 'Agreeableness' dimensions of the FFM. This would suggest that the IPC might be a useful framework within which to explore the relationship between violence and interpersonal style, as Miller et al. (2003) found that the FFM interpersonal 'Agreeableness' dimension was most related to antisocial behaviour among young adults. Although currently the most complete understanding of personality is through the FFM (Blackburn, 2003), the relationship between this model and the IPC has enabled a complementary approach to the assessment of personality, rather than an exclusive one. The development of this research furthered the validation of the circumplex structure and the correlation between dispositional and other interpersonal space, as well as providing a guide to the limitations of interpersonal measures in relation to personality more generally (Lorr, 1996).

3.5.7. The Interpersonal Circumplex and personality disorder

Having identified a utility for interpersonal theory in the assessment of personality more generally, several researchers began to focus on the application of the interpersonal circumplex to disorders of personality (Blackburn, 1998a; Harpur, Hart and Hare, 2002; Hart and Hare, 1994; McCartney, Collins, Park, Larkin and Duggan, 1999). The notion of inflexible personality traits is consistent with the concept of personality disorders as inflexible traits and, because these disorders are defined predominantly by interpersonal dysfunction, many researchers have suggested that the Interpersonal Circumplex provides a basis for describing and classifying them (Blackburn, 2003). This work initially focused on the attempts to locate specific personality disorders within interpersonal dispositional space, with many of the
Diagnostic and Statistical Manual-IV (DSM-IV; American Psychological Association, 1998) personality disorders shown to be well captured by the two-dimensional structures of the Interpersonal Adjective Scales (Wiggins and Pincus, 1989) and the Inventory of Interpersonal Problems – Circumplex Scales (Pincus and Wiggins, 1990; Soldz, Budman, Demby and Merry, 1993). The relationship between personality disorders and mental illness has also been examined in relation to the dispositional interpersonal space (McCartney et al., 1999), demonstrating that mentally disordered offenders in a high security hospital, with Mental Health Act (1983) classifications of Psychopathic Disorder (PD) and Mental Illness (MI), fall in the upper (dominant) and lower (submissive) halves of the circumplex respectively, so indicating that the PD patients present different behavioural characteristics from the MI group.

3.5.8. The Interpersonal Circumplex and violence

Previous research (Blackburn, 1998a; Cooke and Michie, 2001; Harpur et al., 2002; Hart and Hare, 1994; Miller et al., 2003) has alluded to an association between violence and deviant interpersonal style. Typically, explorations of the association between interpersonal style and violence have been carried out through the medium of psychopathy (Cooke and Michie, 2001; Harpur et al., 2002; Hart and Hare, 1994; Miller et al., 2003), as discussed in section 3.4.3. of this chapter. This approach appears to pathologise violence and, as such, is unable to consider violence as an adaptive process (Daly and Wilson, 1995), or to take account of forms of violent behaviour which are not typical to the psychopath. There is a paucity of research which has explored the association between interpersonal style and violence directly; this will now be reviewed.

Blackburn's (1998a) belief that many of the personality traits distinguishing offenders from non-offenders reflect interpersonal characteristics resulted in his examination of the relationship between levels of criminality and interpersonal style in forensic psychiatric patients. Blackburn hypothesised that criminality was associated with the hostile-dominant (‘Cold/Distant’ – ‘Domineering/Controlling’) quadrant of the Interpersonal Circumplex, and found that 1) those without a mental illness were more dominant than those who did have such a diagnosis, and 2) greater interpersonal dominance characterised those with the highest rates of convictions (although this was indexed by frequency of offending behaviour, rather than an examination of the nature of the behaviour). As expected, the high-rate offenders were typically characterised by the hostile-dominant quadrant of the Interpersonal Circumplex, and
offences were likely to include frequent coercive interactions (as indicated by the 'Vindictive/Self-Centred' dimension, a blend of 'Cold/Distant' and 'Domineering/Controlling'). Although correlations of violence with interpersonal dimensions were not significant, violence was located in the dominant-nurturant ('Domineering/Controlling' – 'Self-Sacrificing') quadrant, and was associated with a dominant interpersonal style. Blackburn suggested that this may be indicative of some degree of offence specialisation. The findings more generally suggest that there is a causal link between criminality and stable, long-standing personality characteristics. It may be that violent behaviour needs to be explored within the context of the action before this interpersonal behaviour can be located within dispositional interpersonal space.

In a partial replication of Blackburn's (1998a) research, McCartney et al. (1999) aimed to determine differences in interpersonal style between mentally disordered offender patients detained under the Mental Health Act (1983) classifications of Psychopathic Disorder (PD) and Mental Illness (MI). They reported that the PD group scored higher than the MI group on the dominance ('Domineering/Controlling'), nurturance ('Self-Sacrificing'), gregariousness ('Intrusive/Needy') and coercion ('Vindictive/Self-Centred') scales, but that the MI group scored higher on the withdrawal ('Socially Inhibited') scale. Scores were used to calculate a single representative position in the Interpersonal Circumplex for each individual, and resulted in the PD and MI groups occupying opposing interpersonal space; the PD group were represented in the dominance, nurturance, gregariousness and coercion space, whereas the MI group were located in the hostile ('Cold/Distant'), withdrawn ('Socially Inhibited'), submissive ('Nonassertive') and compliant ('Overly Accommodating') space. This supported Blackburn's (1998a) earlier findings that individuals with personality disorder, especially Psychopathic Disorder, displayed distinctively different interpersonal styles and that Psychopathic Disorder was associated with a coercive, dominant interpersonal style. The association of psychopathy with particular personality variables and interpersonal styles suggests that they may also be associated with violent offending in general, although there is no conclusive evidence to demonstrate this.

Both Blackburn's (1998a) and McCartney et al.’s (1999) research samples included violent mentally disordered offenders, including psychopathic individuals. Therefore, although no direct research has been undertaken in relation to interpersonal style and
violent behaviour, a theme of violence is present in relation to deviant interpersonal style among mentally disordered offenders.

One piece of research has explored the relationship between violence and interpersonal style among a non-mentally disordered population. Anderson (2002) explored differences in interpersonal style between sex offenders and non-sex offenders in a Canadian prison population. Offenders were classified into the following groups: rapists, child molesters, violent (non-sexual) and general (non-sexual, non-violent) offenders, based on criminal history. Profiles of self-report scores on the Interpersonal Adjectives Checklist – Revised (Wiggins, Trapnell and Phillips, 1988) were generated for each of the offence-related groups, and differences were found both within the sexual offender groups (indicating heterogeneity of interpersonal style among sex offenders) and between the sex offender and non-sex offender groups. Anderson reported that the violent offenders scored high on the arrogant-calculating (‘Vindictive/Self-Centred’), assured-dominant (‘Domineering/Controlling’), cold-hearted (‘Cold/Distant’) and aloof-introverted (‘Socially Inhibited’) scales, describing this interpersonal style as ‘cold-hearted’ and located primarily in the hostile-dominant (‘Cold/Distant’–’Domineering/Controlling’) quadrant. Anderson’s ‘cold-hearted’ violent offenders represented individuals who denied being warm, kind or sympathetic and had difficulty expressing affection towards, getting along with and forgiving others. There are similarities in terms of interpersonal space with the findings of Blackburn’s (1998a) research with offenders with Psychopathic Disorder (which described a coercive interpersonal style), although Anderson emphasised the hostile interpersonal style among her sample of violent offenders. Although both Blackburn’s (1998a) and Anderson’s (2002) research identify the hostile-dominant quadrant as being associated with violent behaviour, the differences between them may reflect the differing samples (mentally disordered offenders and prisoners, respectively).

Interpersonal theory suggests that, in order to function effectively on an interpersonal level, an individual should have a repertoire of interpersonal behaviours from which they choose to display the most appropriate behaviour for the situation. In contrast, an individual with a rigid, or characteristically deviant, interpersonal style would be unable to move to another continuum of behaviour. The work of Anderson (2002), Blackburn (1999a) and McCartney et al. (1999) suggest that the interpersonal styles of violent offenders are characterised by extremes on the hostile-dominant quadrant.
The implications of this are that they may have fewer effective pro-social interpersonal strategies than those who do not use violent behaviour (Anderson, 2002). Anderson's research found heterogeneity of interpersonal style among a sample of sex offenders; the interpersonal styles of violent offenders may, therefore, also not form a homogeneous profile of hostile-dominant individuals.

3.5.9. Summary of an interpersonal theoretical approach to understanding aggressive and violent behaviour

Interpersonal theory is concerned with the way in which an individual deals with and relates to others. Within this theoretical framework, the motivation for interpersonal behaviour is considered to be a blend of Dominance/Agency and Nurturance/Communion. The Interpersonal Circumplex is a structural model of dimensions of human interpersonal behaviours in which interpersonal traits can be represented psychometrically. Furthermore, the Interpersonal Circumplex conceptualises both effective and disordered behaviour in terms of individual differences.

The interpersonal framework has most frequently been applied to personality assessment. Research has demonstrated correlates of the dimensions of the Interpersonal Circumplex with 'Extraversion' and 'Agreeableness' of the Five Factor Model. In section 3.4.1., the interpersonal 'Agreeableness' dimension was found to be associated with antisocial behaviour in young adults. As such, its correlation with the Interpersonal Circumplex would suggest that this interpersonal framework might be useful within which to explore the relationship between interpersonal style and violent behaviour. Previous research which explored the relationship between the Interpersonal Circumplex and violent behaviour did so by implication through mentally disordered offenders and personality disorders, and suggested that violent behaviour was located primarily in the 'Cold/Distant' – 'Domineering/Controlling' quadrant. This thesis is interested in the utility of the Interpersonal Circumplex as a framework within which to explore the extent to which interpersonally violent behaviour is motivated by concerns about agency and communion.
3.6. Chapter summary

The roles of dominance, power, control, and coercion in relation to interpersonally aggressive and violent behaviour are clearly implicated across several of the theories of aggression and violence described in section 3.1. In particular, individual contextual motivations for the use of violence have been demonstrated in relation to the establishment of dominance and the negotiation of status and power hierarchies. A series of events and interpersonal interactions throughout childhood and adolescence together shape our characteristic interpersonal style. Of particular relevance to the integration of aggressive behaviour into our interactions with others would appear to be the psychological impact of childhood abuse, particularly with regard to levels of alienation from (or a lack of communion with) others. The consideration of violence as a form of coercive power would appear to sit comfortably between the ideas of violence as a method of establishing dominance and having little psychological identification with others.

Specific individual difference factors in section 3.2. emphasised the role of cognitive and emotional mediation in aggressive and violent behaviour. The role of individual self-efficacy (personal agency) highlights how violence can be used as a method of securing a feeling of control or power. Furthermore, this section draws attention to the extent to which empathic ability and hostile attribution bias can influence an individual's friendly or hostile interaction with others.

Sections 3.3. and 3.4. highlighted that violent offenders can be differentiated not only from non-violent people, but also from each other, on the basis of individual interpersonal characteristics. In particular, a lack of 'Agreeableness', characteristic of someone who is arrogant, manipulative and unconcerned about others, was strongly correlated with the use of antisocial behaviour.

The interpersonal theoretical framework conceptualises interpersonal behaviour as resulting from themes of agency (dominance) and communion (affiliation with others). The extent to which interpersonally aggressive and violent behaviour can be understood within this framework has yet to be explored. Previous research has indirectly implicated violence to be located around the lack of communion ('Cold/Distant'), coercive ('Vindictive/ Self-Centred'), and dominant ('Domineering/ Controlling') dimensions of the Interpersonal Circumplex. However, as this chapter has discussed, there are a variety of motivations and functions of interpersonally
aggressive and violent behaviour, which depend on individual difference and situational factors, cognition and emotion. As aggression and violence are interpersonal behaviours one would expect a broader range of interpersonal styles to be reflected in its use. The typologies of violence discussed in section 3.3. certainly implicate a wider variety of interpersonal styles among people who use violence than those implicated in the literature on the Interpersonal Circumplex and violence to date. Therefore, this thesis is interested in the utility of the Interpersonal Circumplex as a framework within which to explore the extent to which interpersonally violent behaviour is motivated by concerns about both positive and negative agency and communion.
CHAPTER 4

Aims of and rationale for empirical work presented in this thesis

This thesis is concerned with understanding some of the individual difference factors which are associated with interpersonal violence amongst non-offending and violent offending groups of men. In particular, it examines the utility of the Interpersonal Circumplex as a framework within which to explore the extent to which interpersonally violent behaviour is motivated by concerns about both positive and negative agency and communion.

It is argued here that interpersonal violence is "an extreme form" (Blackburn, 1989; p.61) of interpersonal aggression and that the context within which the behaviour takes place distinguishes violence from aggression, rather than some arbitrary set of discriminatory behaviours. This thesis also incorporates the "illegitimate use of force" (Blackburn, 1993a; p.210) and the "intentional infliction of harm" (Blackburn, 1993a; p.211) in its operational definition of violence, as such implicates cognitive processes in the commission of a violent act. Furthermore, it is acknowledged that violent behaviour can be expressed in a variety of different ways, and that each of these expressions can have different meanings or psychological functions for the perpetrator. It is therefore thought important that the classification of participants into different groups is based on the patterns of offending behaviour over time rather than the most recent offence, thus giving us more 'homogeneous' groups in terms of the forms of interpersonal violence their members have committed.

As was discussed in Chapter 3, the interpersonal theoretical framework seeks to explain social behaviour and conceptualises dyadic interpersonal behaviour as resulting from the themes of agency (dominance) and communion (affiliation with others). These themes have also been highlighted as being important individual difference factors in the use of aggressive and violent behaviour. However, the scope of previous research in this field has been limited, in that most studies have tended to focus on people with mental disorder. This has ignored the range of aggressive and violent behaviour and the possibility that, at one end of the continuum, aggression and violence can, under certain circumstances, also have adaptive functions, such as warning trespassers off one's property. Furthermore, by and large, previous research
has not taken into account the full offending history of the participants and therefore classification of participants into different groups of offenders might have been at best misleading and at worst erroneous.

Based on the assumption that the Interpersonal Circumplex framework is likely to be useful for enabling us to understand interpersonal violence amongst offending and non-offending populations, the present research is designed to generate an interpersonal circumplex structure within which to:

- Examine differences in interpersonal style between a non-offending sample and different groups of violent offenders.
- Examine the relationship between aggression, as measured by a self-report psychometric test, and interpersonal style.
- Examine the relationship between different patterns of interpersonally violent offences and interpersonal style.
- Explore the extent to which interpersonal style and aggressive and violent behaviour are related to measures of agency and communion.

This thesis is interested in looking at both current aggressive behaviour, as indexed by a psychometric test, and historical violent behaviour as indicated by offending history. The extent to which interpersonal style is related to aggression was discussed in Chapter 3. Specific components of aggression which were identified as being relatively stable individual characteristics were hostility and anger. However, the extent to which these are related to historical violent behaviour is unclear. Furthermore, the extent to which characteristic interpersonal style can discriminate between people with differing violent offending histories is unknown, but will be investigated in the empirical work presented in this thesis. It is anticipated that those offenders with extensive histories of the use of violent behaviour will be characterised by a lack of communion with others and high agency. However, the extent to which different groups of offenders are characterised by a range of interpersonal styles organised around the principles of agency and communion will also be explored. These investigations will highlight the diversity of aggressive and violent behaviour, in relation to the range of differences in the use of and function of the behaviour.

Thus, this research aims to contribute to our understanding of interpersonal violence by placing the behaviour within a contextual framework organised around the principles of agency and communion. This could account for the interpersonal nature
of violence which, when victims are involved, is an interaction between two or more people. Furthermore, the implications for further research into aggressive and violent behaviour might be the utility of accounting for both current and historical indices of interpersonal violence. Specifically, this facilitates exploration of the relationship between trait aggressiveness, as indexed by the psychometric test, and state violence, as indexed by offending history. Previous research which employed the interpersonal theoretical framework found differences in interpersonal style across different groups of sex offenders (Anderson, 2002), as well as being able to distinguish between various groups of mentally disordered offenders (Blackburn, 1998). Both of these studies made suggestion as to the most effective therapeutic interventions for offenders, most notably matching of interpersonal style to enhance therapeutic outcome.

In addition, the present research is expected to be useful for therapeutic work addressing violent behaviour, specifically in relation to understanding the psychological, interpersonal function of aggressive and violent behaviour. Furthermore, any findings which associate interpersonal style with aggressive or violent behaviour could have implications for the measurement of outcome in treatment, particularly in relation to risk. Specifically, Polaschek and Reynolds (2001) advocate the development of needs assessment batteries and methods of assessing treatment changes following interventions designed to address violent behaviour. Whilst an interpersonal theoretical framework would not permit the movement of an individual from the extremes of the 'Vindictive/Self-centred' scale of the circumplex to that of the 'Overly Accommodating', some degree of movement - in terms of characteristic interpersonal style - towards the origin of the circumplex would serve as an indicator of change. From a management perspective, the present research could have implications for more effective liaisons between staff and service users, particularly in relation to an increase in understanding of offenders' behaviour on a daily basis.

4.1. Sample considerations
Rather than implying association between interpersonal style and violence solely through diagnostic and legal constructs, this thesis aims to explore this relationship among interpersonal style and aggression with a sample of non-mentally disordered non-offenders, a sample of prisoners convicted of interpersonally violent offences,
and a sample of mentally disordered offenders convicted of interpersonally violent offences.

Much of the research on the relationship between personality and aggression focuses on the 'disordered', rather than the 'ordered' personality. One prevalent theme throughout the literature is that aggressive and violent behaviour is 'maladaptive' and, therefore, appears to sit most comfortably with 'disordered' personality. However, as was evidenced in section 3.1.2. of Chapter 3, aggressive and violent behaviour can be considered to be adaptive in its usage. Therefore, in order to fully consider the relationship between interpersonal style and violent behaviour, it would be useful to explore such associations among individuals who are not considered to use violence 'maladaptively' or who are not considered to be 'disordered'. Furthermore, exploration of the relationship between interpersonal style and aggressive and violent behaviour among a sample of non-disordered non-offenders would facilitate some understanding of the extent to which the interpersonal characteristics of the interpersonally violent offenders may deviate from those among individuals who employ relatively more socially acceptable forms of the behaviour. Specifically, this would highlight treatment targets among interpersonally violent offenders.

There is much work to be done to develop interventions with violent offenders to the level of sophistication of those for sexual offenders (Polaschek and Reynolds, 2001). One major criticism of the outcome research of violent offender treatment programmes is that an anger control focus ignores other common motivational functions (Guerra, Tolan and Hammond, 1994), some of which were discussed in the previous chapter. Other cognitive-behavioural programmes (e.g. cognitive skills training and cognitive self-change) teach cognitive and interpersonal skills to manage violence risk, although outcome research has been criticised for using 'low-risk' samples of offenders who have not previously used violence to a large extent. Furthermore, there is some evidence that anger-focused treatment is unlikely to reduce violence risk in those with an extensive and varied history of violence (Polaschek and Reynolds, 2001). Therefore, one benefit of the empirical work presented in this thesis is the use of two samples of offenders with a range of convictions for interpersonally violent offences. The sample generated from Her Majesty's Prisons includes individuals who have employed violent behaviour with differing frequency and intensity, but clearly in a socially unacceptable way. The sample of mentally disordered offenders was selected from a high security hospital,
of which one admission criterion is danger to self or others. Therefore, this sample implicates a persistent use of threatening, aggressive or violent behaviour, and (in most cases) convictions for violent behaviour. As such, a focus on individuals who have employed violence with differing frequencies and intensities will maximise the utility of the findings from this research.

Aggressive and violent behaviour can take many forms. This thesis is concerned with direct interpersonally aggressive and violent behaviour. Two forms of aggression in particular have been excluded from the empirical work presented in the following chapters: fire and sex. The expression of aggression through setting fires is generally of a non-interpersonal nature (or, at least, may be indirectly interpersonally violent), so is not of relevance to this thesis. Furthermore, whilst many sexual offences involve direct interpersonal aggression or violence, the expression of such is often interlinked with sexual motivation. For instance, Koss and Leonard (1984) found that self-reported sexual aggressors were more accepting of rape myths and more likely to attribute responsibility to women. The acceptability of the use of interpersonal violence has also been found to be associated to adversarial sexual beliefs (Rapaport and Burkhart, 1984) and beliefs legitimising the sexual victimisation of women (Alder, 1985). The extent to which these motivations may complicate our understanding of the use of violence more generally is unclear. However, differences in the interpersonal styles of sexual offenders and violent (non-sexual) offenders have been reported (Anderson, 2002). Therefore, given that it is argued in this thesis that violence can take a variety of forms that may serve different functions for, and have different meanings attached to them by, the perpetrators, it was thought that it would be appropriate to exclude from this investigation those with a history of fire-setting or sexual offences. Furthermore, given that this thesis is interested in generating ‘homogeneous’ groups in terms of offending history, the additional complexity of including these alternative expressions of aggression is unwarranted.

There is also one specific individual difference factor, of relevance to this thesis, which appears to influence the expression of aggressive and violent behaviour. There is consistent evidence that men display more aggression than women (Krahé, 2001), with functional differences between them. In two studies exploring aggression among young school-aged children, Crick and Grotpeter (1995) and Rys and Bear (1997) found that boys showed higher levels of physical aggression than girls. The girls were also aggressive, although tended to use verbal and ‘relational’ aggression (for
example, peer exclusion and gossiping) rather than direct physical aggression. This tendency towards the use of more indirect forms of aggression has also been found among adult women (Björkqvist, Österman and Lagerspetz, 1994). Explanations for this gender difference in the expression of aggressive and violent behaviour have been partly addressed in Chapter 3. There is some limited evidence that high levels of the male androgen testosterone are associated with violent behaviour (e.g. Virkunnen et al., 1994). Furthermore, evolutionary perspectives view violence as an adaptive behaviour, used as a method of securing access to reproductive partners (e.g. Daly and Wilson, 1995). This hypothesis is considered to be supported by the finding that aggression decreases with age and that young men are responsible for the majority of violence in society (Bartol, 2002). The evolutionary perspectives also view violence as a method of enhancing reproductive competition among men and as a means of establishing social dominance and maintaining status and power (e.g. Buss, 1999). As such, men within institutions may continue to display direct, aggressive behaviour, despite the risk of institutional sanctions.

This thesis acknowledges the difference in the expression of male and female aggressive and violent behaviour, and the benefits of including both in an investigation into the relationship between interpersonal style and aggressive and violent behaviour, specifically in terms of increasing our understanding of the behaviour. However, it is without the scope of this thesis to investigate this relationship among both male and female offenders. Given the time and material resources available to a PhD student, it was thought appropriate to exclude women from the present research. In particular, the number of women in high security hospitals is low (there are currently less than 40 women among the high security population sampled in this thesis), and there are fewer female prisons over a larger geographical area in England and Wales than there are for men. In addition, the difference in expression of aggression between males and females would add an additional complexity to the investigation of the relationship between interpersonal style and aggressive and violent behaviour.

4.2. Methodological considerations
In order to explore the relationship between interpersonal style and aggressive and violent behaviour, the empirical work presented in this thesis will employ a correlational design. A series of self-report measures were selected to reflect interpersonal style, the circumplex organising principles of agency and communion,
as well as verbal and physical aggression, anger, and hostility. Of course, such a methodology has both benefits and disadvantages, although the positive was considered to outweigh the negative in this regard. As was discussed in Chapter 3, interpersonally violent behaviour is a complex blend of cognition, affect, and motivation, defined within the context in which it takes place. Interested in accounting for cognitive, affective and motivational aspects of interpersonally violent behaviour, a self-report psychometric approach was considered to be the most appropriate in order to achieve these aims. Furthermore, it was anticipated that this would more readily facilitate an exploration of the inter-relationships between interpersonal style and aggressive and violent behaviour.

Self-report measures depend on an individual's level of insight into the domain in question. At some time in our lives most - if not all - of us have lacked insight into the direct or indirect effects of our behaviour on others. Therefore, individual differences in levels of insight will always affect the outcome of this method of research. The extent to which either people use violence due to a lack of concern with others (as discussed in section 3.1.7. of Chapter 3), or due to a lack of insight into the significance of their behaviour, could justifiably be considered to be problematic in the adoption of a self-report approach among violent offenders. Furthermore, some mentally disordered offenders are characterised by a lack of insight into both their illness and their behaviour. However, the empirical work presented in the following chapters of this thesis is concerned with how violent offenders (in particular) make sense of themselves and their behaviour. The measure of interpersonal style, selected for the purposes of addressing the research questions in this thesis, invites the respondent to indicate the extent to which they personally find a range of interpersonal interactions either difficult or easy, and reflects inherent motivations in interpersonal behaviour. As such, any response on this scale will be relative to responses across the others.

In addition to self-reported cognitions, affect and motivations in relation to interpersonally aggressive and violent behaviour, this thesis will also account for violent offending history. One difficulty with research into violent behaviour more generally is the use of the most recent offence as a 'real-time' correlate of individual difference characteristics. In the case of conducting research with life-sentenced prisoners or patients restricted indefinitely under the Mental Health Act 1983, the last known perpetration of a violent act could quite easily have taken place more than ten
years prior to the time of the research. Therefore, the strength of correlations between violent behaviour and individual characteristics can be unclear. Furthermore, failing to take account of an individual's offending history dismisses the context within which each offence takes place. For example, an offender may be classified - for research purposes - as a non-contact sex offender, reflecting the offence which led to their current conviction. However, this individual may have an extensive history of increasingly violent behaviour over a number of years, so could quite easily be classified as a prolific violent offender within other research. For the purposes of the present research, a consideration of the breadth and depth of offending history was considered essential in order to facilitate an understanding of the extent to which aggressive and violent behaviour could be considered to be a part of an individual's characteristic interpersonal style of interacting with others.

### 4.3. Overview of the empirical chapters of this thesis

Chapter 5 of this thesis presents the methodology to be employed across all four empirical chapters. In addition, Chapter 5 describes the structural properties of the psychometric measures employed in this thesis and describes the homogeneity of the non-offending sample. An interpersonal circumplex structure is generated in Chapter 6. This structure provides a basis within which to examine differences in interpersonal style between the non-offending, prisoner, and mentally disordered offender samples. Furthermore, Chapter 6 will explore the extent to which interpersonal style is related to measures of agency and communion. Chapter 7 presents an examination of the relationship between aggression, as measured by a self-report psychometric test, and interpersonal style. In addition, this chapter assesses the degree to which aggressive behaviour is related to measures of agency and communion. The final empirical chapter examines the relationship between different patterns of interpersonally violent offences and interpersonal style, and assesses the extent to which interpersonal style can discriminate between people with different violent offending histories. Furthermore, Chapter 8 also explores the relationship between self-reports of aggressive behaviour and historical indices of violence, in addition to the extent to which aggressive and violent behaviour is motivated by concerns about agency and communion.
CHAPTER 5

Methodology and preliminary analyses

5.1. Background
As discussed in Chapter 3, the roles of dominance, power, control, and coercion in relation to interpersonally aggressive and violent behaviour are clearly implicated in several of the theories of aggression and violence. The interpersonal theoretical framework conceptualises interpersonal behaviour as resulting from themes of agency (dominance) and communion (affiliation with others). The extent to which interpersonally aggressive and violent behaviour can be understood within this framework has yet to be explored. However, the research on the role of self-efficacy (personal agency) highlights how violence can be used as a method of securing a feeling of power or control. Furthermore, developmental research into the psychological impact of childhood abuse highlights how this can create a feeling of alienation from (or a lack of communion with) others, which has been demonstrated to increase risk of violent behaviour in adulthood. In addition, Chapter 3 highlighted how specific cognitive and emotional individual difference factors mediate aggressive and violent behaviour, specifically anger, empathic ability and hostile attribution bias.

One interest of this thesis is in the utility of the Interpersonal Circumplex as a framework within which to explore the extent to which interpersonally violent behaviour is motivated by concerns about both positive and negative agency and communion. Previous research which explored the relationship between the Interpersonal Circumplex and violent behaviour did so by implication through mentally disordered offenders and personality disorders, with little attention paid to either the 'non-disordered' or direct relationship between interpersonal style and violent behaviour. Therefore, the relationship between interpersonal style and interpersonally aggressive and violent behaviour is unclear. This thesis will explore this relationship, both among 'disordered' and 'non-disordered' samples. However, before such an exploration can take place both the strength of the Interpersonal Circumplex model and the measures of agency and communion must be tested.

Reliability data for the measures used in this thesis were largely unavailable for British males, so a sample of non-offending British males was pooled from the
general population. This was considered to be important due to differences in the use of and perception of violent behaviour across cultures (Aijmer, 2000; Lubel et al., 1991; 1992). Previous research has employed samples of mentally disordered offenders to indirectly explore the relationship between interpersonal style and violent and aggressive behaviour. The present research generated samples of offenders from both the general prison population and a high security hospital, in order to explore both the interpersonal styles of violent offenders and the potential relative contribution of mental disorder to violent behaviour. These aims will be addressed in Chapters 6, 7, and 8 of this thesis.

5.2. Overview of Chapter 5
This chapter will first describe the methodology applied to the research presented in this thesis. The research presented in Chapters 6, 7, and 8 is based on the methodology presented in this chapter. Thereafter, the results of a series of preliminary analyses will be presented, which will explore the structure and strength of each of the measures included in the research presented in this thesis, across three samples of British males.

5.3. Method
The methodology presented in this section forms the basis for the research presented in Chapters 6, 7, and 8 of this thesis.

5.3.1. Design
This study employs a correlational design, involving the administration of a battery of measures of the following constructs; interpersonal style, self-reported aggression, general perceived self-efficacy, psychological estrangement and empathic ability.

5.3.2. Samples
Three samples (a total of 518 participants) of British males (over the age of 18 years) were pooled from three distinct populations: 1) non-offending volunteers, 2) prisoners resident within Her Majesty's Prison Service, and 3) mentally disordered patients at a high security hospital. Ethical approval to conduct this piece of research was received from the University of Surrey Advisory Committee on Ethics, the Home Office Applied Psychology Group, Broadmoor Hospital Ethics Committee and West London Mental Health NHS Trust Research and Development Unit (please see appendix 2 for copies of these letters).
5.3.2.1. Non-offending volunteers

British norms were unavailable for many of the measures selected for this study. In order to perform structural and reliability analyses the recruitment of a sample of 320 participants was considered to be the minimum. British males over the age of 18 years with no self-reported criminal convictions were included in the sample. The mean age of the sample was 36.63 years (± 12.24 years, range 18-89 years).

Several sampling methods were employed to ensure sufficient sample size for reliability analyses of the questionnaire battery measures (the characteristics of each sub-sample are described in Table A in appendix 3). One such sampling strategy was through the use of the internet as a primary research tool. Despite previous claims that samples generated from the internet are biased toward well-educated, technologically-proficient males (Smith and Leigh, 1997), current evidence suggests that the internet-user population represents a vast and diverse section of the general population (Hewson, Yule, Laurent and Vogel, 2003) and that the internet now provides a valuable new resource for research. For the purposes of the present study it was considered to be important to gather data from as diverse a cross-section of the general male population as possible, so the internet-mediated sampling method was considered to be appropriate here. Exploratory analyses of the differences between non-offending groups in terms of method of completing the questionnaire battery (for the purposes of establishing homogeneity of the non-offending volunteer sample) are presented in section 5.6..

1. A series of messages were posted on-line during December 2003, specifically targeted at those newsgroups that were considered to have a high volume of male readers/members (please see appendix 4 for a copy of this message and the associated Google web-page addresses). The brief posted message invited the reader to find out more and take part in the study by going to a specified internet address, set up by the University of Surrey for the purposes of this study. A copy of the on-line information sheet and details of the study can be found in appendix 5.

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1 For factor analysis, the recommended number of participants is five times the number of variables (Tabachnik and Fidell, 1996). One of the measures in the present study is comprised of 64 items, so a sample of 320 participants was considered to be the minimum size necessary to generate sufficient power for analysis.
A total of 217 responses were received, of which 70 (32.26%) were included in analyses. In addition to the inclusion/exclusion criteria, multiple responses that were posted from the same host were examined for duplication or potential attempts at sabotaging the research and responses that were completed in less than 15 minutes (900 seconds) were excluded, as there was unlikely to have been sufficient time to read and complete the questionnaire battery. This sampling strategy was discontinued at the end of December as several personally threatening messages were received from newsgroup members and there were clear indications of sabotage (for example, newsgroup members posted messages to other group members encouraging them to repeatedly fill in the questionnaires in a random format from several different computers). Whilst all efforts were made to use this sampling strategy within the ethics of internet research (Hewson et al., 2003) it became clear that, for the minority, the selected newsgroups were considered unsuitable forums for inviting participation in research.

2. A total of 200 letters of invitation to participate in the research were delivered to dwellings in an economically diverse area of Guildford in January 2004. The letter (please see appendix 6) encouraged potential participants to complete the series of questionnaires on-line and also provided a telephone number to request a paper version of the battery: two responses were received on-line and a further 2 paper versions were sent to those whom requested. The further use of this sampling strategy was not considered to be viable, due to the poor response rate. One possible reason for the lack of interest to participate in this study across this specific sample may be that the research would not have appeared to be personally applicable to the potential participant. Furthermore, some people may have considered that they would have been 'helping' offenders by taking part in the research, an aim of which was to inform the treatment of violent offenders. As far as this thesis is aware, there has been no specific research conducted into the attitudes of the general public towards violent offenders, however, current media and political representations of attitudes towards offenders are generally more punitive than rehabilitative.

3. A total of 208 on-line responses were received using the 'snowball effect' (between February and July 2004) of recruitment. A copy of the on-line
information sheet and details of the study can be found in appendix 5. Of the 208 responses, 34 were excluded from analysis as they did not meet the inclusion (British, male and over 18 years of age) and exclusion (a history of self-reported criminal convictions) criteria, rendering a total sample of 174 (83.65%). In addition, the completion cut-off of 900 seconds was applied to these responses.

4. Six local businesses in the Guildford area (selected for the potentially large number of male staff employed) were approached with an invitation to learn more about the research before potentially becoming involved (please see appendix 7 for the letter of invitation). One business declined the invitation and two large supermarkets accepted. Responses were not received from the remaining three. Employees were approached in the staff canteen of each respective supermarket, during specified hours on a specified day; staff were personally approached and invited to take part in the research during their time at work. Most employees were willing to participate in the research, and those who completed the questionnaire battery in the presence of the researcher appeared to consider their responses and completed the questionnaires thoughtfully (although this may have been a product of completing the battery within paid working hours). Eighteen completed questionnaires were returned at the time of participation, although 2 were subsequently excluded as they did not meet the inclusion criteria (i.e. they were non-British). A further 62 questionnaires were distributed personally to staff who expressed an interest in completing the battery, although who chose not to return the completed questionnaire to the researcher at that time. All questionnaires were provided with a FREEPOST-addressed envelope for the anonymous return of the questionnaires, so the precise response rate of this sampling method is unclear.

5. A further 400-450 paper versions of the questionnaire battery were distributed on a 'snowball' basis, for return in a FREEPOST envelope (please see appendix 8 for information sheet). 78 completed questionnaires were returned, rendering a response rate of between 17.3% and 19.5%. One possible reason for this low response rate is that not all questionnaires were distributed as expected. Two of the completed questionnaires were excluded (one person was female and the other had an extensive history of self-
reported criminal convictions), leaving a total sample of 76 (97.44% of those received). As stated previously, another reason for the low response rate here may be the attitude of the general public to offenders.

5.3.2.2. Prisoners resident within Her Majesty's Prison Service

Seventeen of Her Majesty's prisons across six Home Office-defined geographical areas (East Midlands-South; High Security; Kent, Surrey and Sussex; London; South West; Thames Valley, Hants and Isle of Wight) were selected as being suitable to approach to take part in the research, based on the following inclusion/exclusion criteria: housing convicted male prisoners, non-dispersal institution, non-high-secure institution, containing predominantly violent (as opposed to sexual) offenders. A letter was sent to the Governor and Head of Psychology (where appropriate) at each institution, providing information about the study and inviting them to include their prison in the research (please see appendix 9). Six prisons agreed to facilitate the research, following approval from each of the respective Area Psychologists: HMPs Channings Wood (Category C), Coldingley (Category C), Gartree (Category B), Grendon (Category B), Swaleside (Category B) and Wandsworth (Category B). In consultation with the Head of Psychology/Governor at each of the institutions, prison wings were identified to participate in the research, on the basis of the following prisoner inclusion/exclusion criteria: 1) include convicted British violent offenders, 2) exclude prisoners with sexual offences or a history of fire-setting (as discussed in Chapter 4). A potential sample of 1791 was identified, based on the number of prisoners resident on each of the selected wings across the six prisons.

A total of 169 questionnaires were returned from the 1791 distributed across participating wings of six prisons (this procedure will be discussed in section 5.4.4.), yielding a response rate of 9.44%. Of the 169, 43 participants (25.44%) were excluded from analyses as they did not meet the research criteria; 15 participants were excluded as they were non-British (primarily Caribbean/South American/African), 5 were excluded as they reported a history of sexual offences, 7 were excluded as they self-reported a history of fire-setting and 16 were excluded as no demographic or offending history was supplied. The responses of the remaining 126 prisoners were included in the analyses. The mean age of prisoners was 34.64 years (± 9.68 years, range 21-63 years) and the mean length of current sentence served was 3.22 years (± 3.67 years, range 0.08-20 years). All prisons held a large number of prisoners on long or life sentences, so the mean length of sentence served
here indicates that those who had currently served relatively few years were more willing to complete the questionnaire battery. This finding may provide some insight into the low response rate throughout the prison service, adding further support to the idea that prisoners are 'questionnaired-out' through audit, bureaucracy and both in-house and external research, and see little in the way of change to justify repeated participation in what they see as useless 'form-filling'.

In terms of ethnic background, 85% of the prison sample identified themselves as White British and 10% as Black British. This is comparable to the finding of a thematic review across 16 prisons (n=416) in which 79% of prisoners who completed a series of questionnaires were 'White' and 13% were 'Black' (Lloyd, Calderbank, Lewis-Moore, Allen and Flaxington, 2001). This study also reported that the most common age group was 25-29 years (27%), followed by 21-24 years (23%) and 30-34 years (21%). Therefore, the present prison sample would appear to be similar to those previously reported, in terms of ethnic background and age. Demographic and forensic information for participants from each institution are presented in Table B in appendix 12.

5.3.2.3. Patients within a high security hospital

Broadmoor Hospital is one of three high security hospitals in England and Wales which provide psychiatric treatment under conditions of maximum security for patients considered to be either a danger to themselves or others. Patients are admitted to Broadmoor Hospital under one or more of the four legal categories of the Mental Health Act 1983: Mental Illness, Psychopathic Disorder, Severe Mental Impairment, Mental Impairment. At the time of this research, all Broadmoor patients were classified as either one or both of Mental Illness or Psychopathic Disorder. Currently, patients under the Mental Impairment categories are directed to another high security hospital. At the time of this research Broadmoor Hospital had a catchment area which included parts of Southern England and South Wales.

By the very nature of this population, patients typically have a history of interpersonally violent behaviour. A total potential sample of 96 mentally disordered patients was identified at Broadmoor Hospital, based on the following:

- **Inclusion criteria** – male patients with a conviction for at least one interpersonally violent offence.
• **Exclusion criteria** – 1) a history of sexual offences, alleged sexual offences or violent offences with an explicit sexual ‘motive’ (as discussed in Chapter 4), 2) a history of arson (as discussed in Chapter 4), 3) patients who were actively psychotic (at the time of sample selection) or whose violence was integrated into a specific delusional belief system.

Responses concerning patient competency to consent to participate in research were received from the Responsible Medical Officers (RMOs) for each patient; 6 (6.25%) were deemed not competent to consent and 1 (1.04%) other patient had been transferred to another hospital. A total of 89 (92.71%) patients were considered suitable to approach for participation in this research, but 1 had subsequently left the hospital. Of the remaining 88, 16 (18.18%) patients would not meet with me to introduce myself and explain the nature of the research and 16 (18.18%) met with me but declined to take part in the research. Most of these patients expressed disinterest in completing questionnaires. A total of 56 (63.64%) patients consented to take part in the research. This response rate is lower than both experimental research conducted among a cohort of sexual offenders at Broadmoor (70%; Lumbard, 2002) and also to previous semi-structured interview research undertaken with a cohort of Mentally Ill patients at the hospital (87%; Glorney, 2000).

The mean age of patients in this sample was 37.59 years (± 9.49 years, range 20-63 years), with most patients being White British (66.07%) and a further 26.79% identifying themselves as either Black British or Black Afro-Caribbean (but raised and educated in the U.K.). The mean length of current sentence served was 9.51 years (± 6.52 years, range 0.42-25.83 years), whilst the mean length of current stay in Broadmoor was 5.9 years (± 4.59 years, range 0.33-19.75 years). 69.64% of the present sample was classified under the Mental Health Act (1983) category of Mental Illness, 14.29% were classified as Psychopathic Disorder and a further 16.07% were classified as both Mental Illness and Psychopathic Disorder. Demographic and forensic information for participants are presented in Table C in appendix 16.

A study of 100 consecutive male admissions to Broadmoor Hospital (which commenced in 1990) reported similar demographic information. Lumsden et al. (1998) reported that the mean age at admission was 31.3 years (± 8.4 years), 81% were of Caucasian origin, 17% were of Afro-Caribbean or African ethnic background, and 65%, 22% and 15% were classified under the Mental Illness, Psychopathic
Disorder and dual Mental Illness/Psychopathic Disorder categories (respectively) of the Mental Health Act 1983. As such, the present sample appears to differ from that of Lumsden et al. (1998) in terms of ethnic identification, with a potential underrepresentation of White British and overrepresentation of Black British or Black Afro-Caribbean participants. Generally, the present sample could be considered to be representative of a general admission cohort to Broadmoor Hospital.

5.3.3. Measures

Five measures were included in the questionnaire battery and are outlined below. The initial interpersonal measure included in the design of this research was the Interpersonal Adjectives Scales (IAS; Wiggins, 1995), which formed the basis of much of Blackburn's work (e.g. 1998a). However, following feedback from the Broadmoor Hospital Ethics Committee that some patients might find this measure particularly difficult to complete, the Inventory of Interpersonal Problems-Circumplex Scales (IIP-C; Horowitz, Alden, Wiggins and Pincus, 2000) was adopted in its place. The two measures differ in terms of self-rating a list of adjectives (on the IAS) and describing the extent to which a statement is characteristic of oneself (the IIP-C). In a small study (n=10) exploring the ease-of-completion of each of these measures, non-offending volunteers commented that the IIP-C was more straightforward. In addition, this measure had previously demonstrated a strong circumplex structure. As this thesis is partly interested in the location of aggressive and violent interpersonal behaviour within the circumplex, this was considered to be an especially useful measure to employ. Participants in the non-offending volunteer and HMP samples were also asked to complete a short demographic information sheet that included a section to disclose criminal convictions (please see appendix 17).

5.3.3.1. The Inventory of Interpersonal Problems – Circumplex Scales (Horowitz et al., 2000)

This is a 64-item self-report instrument designed to measure interpersonal deficiencies and excesses (please see appendix 18). The measure is comprised of eight 8-item scales representing the octants of the interpersonal circumplex of interpersonal theory. Internal consistency has been demonstrated across the eight scales as between 0.76 and 0.88 (Horowitz et al., 2000). The first set of items begins with the statement 'It is hard for me to ...' and the second set of statements includes behaviours that the respondent may do 'too much'. Items are scored on a 5-point scale ranging from not at all to extremely. An overview of each of the scales is
presented below:

- **Domineering/Controlling**: A high score on this scale would indicate that an individual finds it difficult to relinquish control. Such a loss of control may be perceived as a loss of self-respect, in which an individual's identity is threatened. Some people may find it so difficult to relax control that they may be unable to take the perspective of another and, consequently, find oneself in confrontation with others. Examples of items on this scale include 'It is hard for me to understand another person's point of view' and 'I am too aggressive toward other people'. Cronbach's alpha reliability coefficients for this scale have been established at 0.76 (Horowitz et al., 2000) and 0.77 (Alden, Wiggins and Pincus, 1990), both of which were based on mixed-gender samples in the United States.

- **Vindictive/Self-Centred**: A high score on this scale would be indicative of someone who expresses hostility and anger towards others, with little regard for their welfare. Examples of items on this scale include 'It is hard for me to really care about other people's problems' and 'I am too suspicious of other people'. Horowitz et al. (2000) established α=0.81 for this scale and Alden et al. (1990) reported α=0.80.

- **Cold/Distant**: People reporting problems on this scale may typically feel that they are unable to form attachments with others, prefer their own company and lack warmth and generosity towards others. Examples of items on this scale include 'It is hard for me to show affection to other people' and 'I keep other people at a distance too much'. Reported values of Cronbach's alpha for this scale are 0.86 (Horowitz et al., 2000) and 0.81 (Alden et al., 1990).

- **Socially Inhibited**: A high score on this scale would suggest the presence of many of the characteristics associated with introversion, as well as social anxiety and social avoidance. Examples of items on this scale include 'It is hard for me to express my feelings to other people directly' and 'I am too afraid of other people'. Both Horowitz et al. (2000) and Alden et al. (1990) reported values of Cronbach's alpha for this scale as 0.85.
• **Non-assertive**- A high score on this scale would indicate a lack of self-confidence and self-esteem, in addition to anxiety relating to disapproval from others and negative evaluation. Examples of items on this scale include 'It is hard for me to tell a person to stop bothering me' and 'It is hard for me to be assertive with another person'. Reported values of Cronbach's alpha are 0.88 (Horowitz et al., 2000) and 0.85 (Alden et al., 1990).

• **Overly Accommodating**- People scoring high on this scale would typically go to any lengths to win the approval of others, be easily persuaded and avoid confrontation at all costs. Examples of items on this scale include 'It is hard for me to let other people know when I'm angry' and 'I let other people take advantage of me too much'. Reported values of Cronbach's alpha are 0.81 (Horowitz et al., 2000) and 0.82 (Alden et al., 1990).

• **Self-Sacrificing**- A high score on this scale would be indicative of someone who is generous and warm towards others, but takes on another's problems as if they are their own. The sense of protection over others extends to the suppression of feelings of hostility, anger and aggression. Examples of items on this scale include 'It is hard for me to let myself feel angry at somebody I like' and 'I am affected by another person's misery too much'. Reported values of Cronbach's alpha are 0.80 (Horowitz et al., 2000) and 0.76 (Alden et al., 1990).

• **Intrusive/Needy**- People with a high score on this scale would have similar characteristics as those associated with extraversion, but problems are reported when the behaviour is not boundaried and individuals impose themselves on others to draw attention to themselves. Examples of items on this scale include 'It is hard for me to spend time alone' and 'I want to be noticed too much'. Both Horowitz et al. (2000) and Alden et al. (1990) reported values of Cronbach's alpha as 0.76.

5.3.3.2. **The Aggression Questionnaire (Buss and Warren, 2000)**
The Aggression Questionnaire assesses physical, verbal and indirect aggression, as well as hostility and anger (please see appendix 19). This was selected on the basis of good reliability (scale reliability between 0.72 and 0.88; Buss and Warren, 2000) and stability over time, the Inconsistent Responding Index (as a further measure of
reliability), as well as the Indirect Aggression Scale, a concept that could be important among offenders in institutions who are discouraged from displaying aggressive behaviour. Furthermore, various versions of the Aggression Questionnaire (adapted from the Buss-Durkee Hostility Inventory, 1957) have been employed throughout the literature on self-reported aggression (e.g. Dill et al., 1997; Richardson et al., 1994).

The standardisation sample (n=2038) for this measure was mixed gender, 53% of which were under the age of 18 years, the remainder being U.S. college students. The Aggression Questionnaire is rated on a 5-point scale from completely like me to not at all like me. An overview of each of the scales is presented below:

- **Physical aggression**: This includes eight items, such as ‘Someone has pushed me so far that I hit him or her’ and ‘At times I can't control the urge to hit someone’. People who score high on this scale may be unable to control urges toward physical aggression, which may be due to high levels of arousal, irritability or anger. Buss and Warren (2000) reported a Cronbach’s alpha reliability coefficient of 0.88.

- **Verbal aggression**: This scale includes five items, such as ‘I can't help getting into arguments when people disagree with me’ and ‘I tell my friends openly when I disagree with them’. A high score on this scale would be typical of someone who was more argumentative than most, whereas a low score may be indicative of someone who is hesitant to assert themselves (or reluctant to endorse items, as is the case with all questionnaire items). Buss and Warren (2000) reported a Cronbach’s alpha reliability coefficient of 0.76.

- **Anger**: High scores on this scale are often associated with irritability, frustration and emotional lability. The scale is comprised of seven items, including ‘At times I get very angry for no good reason’ and ‘At times I feel like a bomb ready to explode’. Buss and Warren (2000) reported a Cronbach’s alpha reliability coefficient of 0.78 for this scale.

- **Hostility**: A high score on this scale is most closely associated with pervasive social maladjustment, and implicates elevated scores on other Aggression Questionnaire scales as the individual is in a state of social alienation and therefore unable to take into account the needs or feelings of others. The
eight items on this scale include 'I wonder what people want when they are nice to me' and 'Other people always seem to get the breaks'. Buss and Warren (2000) reported a Cronbach's alpha reliability coefficient of 0.82 for this scale.

- **Indirect aggression**: A high score on this scale would be typical of someone who has a tendency to express anger in actions that avoid direct confrontation. Conversely, someone with a low score may be willing to use direct confrontation to resolve conflicts in their lives. Examples of statements on this six-item scale include 'When people are bossy, I take my time doing what they want, just to show them' and 'I sometimes spread gossip about people I don’t like'. Buss and Warren (2000) reported a Cronbach's alpha reliability coefficient of 0.71 for this scale.

### 5.3.3.3. General Perceived Self-Efficacy questionnaire (Schwarzer and Jerusalem, 1995)

This is a 10-item questionnaire initially designed to measure personal sense of control among German populations, although has subsequently been translated into a variety of languages, including English (please see appendix 20). The scale has been used in various studies, where it typically yields internal consistencies between $\alpha=0.75$ and $\alpha=0.90$ (Schwarzer, 1995). Respondents are asked to rate the statements on a 4-point scale from *not at all true* to *exactly true* and include items such as 'I am confident that I could deal efficiently with unexpected events' and 'I can solve most problems, if I invest the necessary effort'.

### 5.3.3.4. Psychological Estrangement questionnaire (Hammond, 1988)

This is a 30-item questionnaire (see appendix 21) initially designed to measure social, rule-group and existential estrangement among adolescents (Hammond, 1988). No base-line measures for adult males were available. The questionnaire contains a series of statements which are rated on a 5-point scale from *strongly agree* to *strongly disagree*. An overview of each of the scales is presented below:

- **Existential estrangement** – A low score on this 12-item scale (endorsing items towards the 'strongly agree' option) would be typical of someone who felt psychologically distant from the self and confused about the state of the world
around them. Items on this scale include 'I find it hard to know where I stand from one day to the next' and 'I often feel awkward and out of place'. Hammond (1988) reported a Cronbach's alpha reliability coefficient of 0.84 for this scale, among the adolescent sample.

- **Social estrangement** — A high score on this 10-item scale (endorsing items towards the 'strongly disagree' option) would be indicative of someone who feels socially alienated from others, whereas a low score would be typical of someone who enjoys and is comfortable being in the company of others. Items on this scale include 'I am a sociable person' and 'I believe that most people really do care what happens to others'. Hammond (1988) reported a Cronbach's alpha reliability coefficient of 0.79 for this scale, among the adolescent sample.

- **Rule-group estrangement** — A low score on this 7-item scale would be typical of someone who is aware of and happy to abide by societal parameters, whereas a high score would be indicative of someone who disregards the rules of society as a result of a lack of identification with and respect for those around them. Items on this scale include 'I am most comfortable when I have well-defined rules to follow' and 'I believe that there are no right or wrong ways for successful living, just easy and hard ways'. Hammond (1988) reported a Cronbach's alpha reliability coefficient of 0.62 for this scale, among the adolescent sample.

5.3.3.5. **The Interpersonal Reactivity Index (Davis, 1980)**

This is a 28-item index that measures four components of empathy; perspective-taking, empathic concern, fantasy and personal distress (please see appendix 22). Items are scored on a 5-point scale from *does not describe me well* to *describes me very well* and each of the 7-item scales have demonstrated good reliability (Davis, 1983). An overview of each of the scales is presented below:

- **Perspective taking** — This is a cognitive measure of the ability to appreciate other people's point of view. Items include 'I try to look at everybody's side of an argument before I make a decision' and 'I sometimes try to understand my friends better by imagining how things look from their point of view'. Increasingly high scores reflect the ability to take another's perspective.
• **Empathic concern** – This is an affective measure of the ability to feel compassion and concern for others having negative experiences. Items include ‘I often feel sorry for people less fortunate than me’ and ‘When I see someone being bullied or ripped off I feel a bit protective towards them’. A high score would be indicative of someone empathic towards others’ experiences.

• **Fantasy** – This is a measure of the ability to identify with fictitious characters. Items include ‘After seeing a character on TV or in a film I have felt as though I was like that character’ and ‘I daydream quite often about things that might happen to me’. A high score would be indicative of fantasy-proneness.

• **Personal distress** – This is a measure of the extent to which an individual shares the negative emotions of others. Items include ‘Being in a tense emotional situation scares me’ and ‘When I see someone who badly needs help in an emergency I go to pieces’. Increasingly high scores on this scale reflect higher levels of personal distress.

### 5.3.4. Procedure

The procedure for questionnaire administration varied slightly across the three samples, so will be discussed in turn.

#### 5.3.4.1. Non-offending volunteers

Regardless of the mode of completion (on-line or pencil and paper), participants were provided with information about the study, including aims, implications and benefits of taking part in the research (see appendices 5 and 8). In addition, participants were told that completion and return (in a FREEPOST envelope) or on-line submission of responses would be taken as individual consent to participate in the research.

Participants were directed to 1) read the instructions carefully at the beginning of each set of questions, as the method of responding varied throughout, and 2) to answer questions as honestly as possible. They were also reminded that responses would not be examined on an individual basis, but would serve as part of a group data set to compare with offender groups. Participants were also given the opportunity to request further information about the study, either by providing their e-mail address (on-line study) or their home address.
5.3.4.2. Prisoners resident within Her Majesty's Prison Service

A number of laminated posters explaining the research aims and objectives (see appendix 10) were placed throughout the participating wings. These posters were displayed for one week prior to data collection. Questionnaire batteries were distributed in self-seal envelopes to all prisoners on each identified wing prior to a period of time where the prisoners were confined to their cells. An anonymous demographic sheet (see appendix 17) was also attached to the battery, on which self-reported convictions were noted. A covering letter was also attached to each questionnaire introducing the researcher, instructions for completion and submission, and an explanation of the aims, objectives and implications of the research (see appendix 11).

In order to encourage participation in the research, the researcher was available on each participating wing for a period of time to answer questions and discuss the research with individuals; the times of availability were printed on posters displayed on the wing. Consent to participate in the research was taken from the completion and return of the questionnaire.

5.3.4.3. Patients at a high security hospital

The Responsible Medical Officer (RMO) for each patient identified as potentially suitable to take part in the research was contacted by letter (see appendix 13), so as to provide an opinion as to the patient's competency to consent to take part in the research. This correspondence provided an overview of the study aims and procedure, a copy of the information sheet for patients, as well as a form for the RMO to indicate patient competency to consent. Once a consent form was received from the RMO the relevant ward was contacted and an appointment arranged to inform the patient about the nature and purpose of the study. During this time the interviewer would introduce herself to the patient, read through the information sheet (see appendix 14) and answer any questions that the patient had at the time. The patient could choose to decline participation in the study, with no effect on his treatment or care within Broadmoor Hospital, or indicate informed consent to take part in the research by signing a consent form (see appendix 15). Copies of the signed consent forms were then held in the patient's medical record, as per hospital policy.

Due to the prevalence of literacy and cognitive difficulties amongst patients at the hospital, the researcher read the information presented at the beginning of each
measure and clarified response mode with each patient, as well as reading out all of
the items in the questionnaire battery whilst the patient indicated responses. The
researcher did not need to provide clarification on any of the questionnaire items.
Patients were encouraged to ask questions if they were unclear about any of the
procedures or statements.

5.3.5. Overview of analyses
Structural and reliability analyses of measures will be carried out on data generated
from the non-offending volunteer sample, with reliability analyses only being carried
out with the smaller samples from HM Prison Service and Broadmoor Hospital. The
exception to this is confirmatory structural analysis of the Inventory of Interpersonal
Problems – Circumplex Scales amongst the two forensic (HM Prison and Broadmoor)
samples.

Exploratory analyses will be carried out to assess the homogeneity of the non­
offending volunteer sample, in light of the mixed methods of completing the
questionnaire battery, either on-line or using the traditional pencil-and-paper method.
A homogeneous group will provide the base-line measures for the two forensic
samples.

5.4. Structural and reliability analyses of the measures
For each of the five measures in the questionnaire battery, analyses were first
conducted with the non-offending volunteer sample in order to explore structure and
reliability of these measures across the sample of British males. Subsequent
structural and reliability analyses were then carried out on 1) the sample of 126
British men currently resident in HM Prison Service and 2) the sample of 56 mentally
disordered violent offenders within Broadmoor Hospital.

5.4.1. Inventory of Interpersonal Problems – Circumplex Scales
Structural and reliability analyses for the Inventory of Interpersonal Problems­
Circumplex Scales (IIP-C; Horowitz et al., 2000) across each of the samples are
presented below.

5.4.1.1. Non-offending volunteer sample
Two participants were excluded from analyses (n=334) as they did not complete the
IIP-C.
5.4.1.1. Structural exploration of the Inventory of Interpersonal Problems – Circumplex Scales

For the purposes of this thesis, there were two main reasons for the structural exploration of the Inventory of Interpersonal Problems – Circumplex Scales (IIP-C). The first was to explore the extent to which each of the eight scales were either individual or inter-related components of the IIP-C. The second was to investigate whether the eight scales could be accounted for by the two organising principles of agency ('Dominance-Submission') and communion ('Coldness-Friendliness').

In order to explore the structure of the IIP-C, a principal components analysis (PCA) was performed on all 64 items (Kaiser's measure of sampling adequacy = .901). Eight factors (in accordance with the number of IIP-C scales) accounting for 53.93% of the variance were extracted and rotated using the oblimin method. Four of the components were uninterpretable and, on examination of the scree plot, there seemed to be a clear three-factor solution (the first accounting for 22.97% of the variance, the second and third 8.32% and 8.25% respectively). As such, there seemed to be some level of inter-relation between the eight scales of the IIP-C.

Three factors were extracted and subjected to oblique rotation, which converged in 29 iterations. Some degree of correlation was evident between the components, most noticeably between component I and components II and III (see Table 5.1). There was little correlation between components II and III, consistent with previous analyses of the IIP-C (Alden et al. 1990).

<table>
<thead>
<tr>
<th>Table 5.1: Inventory of Interpersonal Problems – Circumplex Scales component correlation matrix: non-offending volunteer sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component I</td>
</tr>
<tr>
<td>Component I</td>
</tr>
<tr>
<td>Component II</td>
</tr>
<tr>
<td>Component III</td>
</tr>
</tbody>
</table>
than differences in the perception of the self. Across the literature on circumplex modelling the recommended method of taking account of the potential 'general' component within interpersonal measures is to transform data using the process of deviation scoring (Acton and Revelle, 2004, 2002; Alden et al., 1990). Therefore, each participant's mean score across all items of the IIP-C was computed and subtracted from their responses on each of the 64 items. Items were then summed in accordance with the eight IIP-C scales to produce deviation scored scale scores across participants. These scale scores were then subjected to PCA.

PCA revealed that two components accounted for 67.87% of the variance, which were extracted and rotated using the direct oblimin method. There was no correlation between the two components (<0.05), so varimax rotation was applied. The structural coefficients and associated item communalities are presented in Table 5.2.

Table 5.2: Inventory of Interpersonal Problems – Circumplex Scales structural coefficients and item communalities after principal components analysis varimax rotation of deviation-scores: non-offending volunteer sample

<table>
<thead>
<tr>
<th></th>
<th>Component I</th>
<th>Component II</th>
<th>communalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA: Domineering/Controlling</td>
<td>.8</td>
<td>-.264</td>
<td>.71</td>
</tr>
<tr>
<td>BC: Vindictive/ Self-Centred</td>
<td>.74</td>
<td>.341</td>
<td>.665</td>
</tr>
<tr>
<td>DE: Cold/Distant</td>
<td>.359</td>
<td>.681</td>
<td>.593</td>
</tr>
<tr>
<td>FG: Socially Inhibited</td>
<td>-.21</td>
<td>.803</td>
<td>.689</td>
</tr>
<tr>
<td>HI: Non-assertive</td>
<td>-.813</td>
<td>.207</td>
<td>.705</td>
</tr>
<tr>
<td>JK: Overly Accommodating</td>
<td>-.802</td>
<td>-.249</td>
<td>.705</td>
</tr>
<tr>
<td>LM: Self-Sacrificing</td>
<td>-.349</td>
<td>-.691</td>
<td>.599</td>
</tr>
<tr>
<td>NO: Intrusive/Needy</td>
<td>.289</td>
<td>-.825</td>
<td>.765</td>
</tr>
</tbody>
</table>

The two components reflect the 'agency' and 'communion' axes of the interpersonal circumplex, 'Dominance-Submission' and 'Coldness-Friendliness', so were therefore labelled accordingly. Furthermore, when plotted in two-dimensional space, the position of the structural coefficients of the two components appears to replicate a circumplex structure (Figure 5.1).
The extent to which these data form a circumplex structure will be explored in Chapter 6.

5.4.1.1.2. Reliability of the Inventory of Interpersonal Problems-Circumplex Scales

Items from each of the eight published scales (8 items per scale) underwent Cronbach's alpha reliability analyses, the results of which are presented in Table 5.3.
Table 5.3: Cronbach’s alpha reliability coefficients for Inventory of Interpersonal Problems-Circumplex Scales: non-offending volunteer sample

<table>
<thead>
<tr>
<th>Scale</th>
<th>Present sample N=334 British males</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA: Domineering/ Controlling</td>
<td>α = .76</td>
</tr>
<tr>
<td></td>
<td>mean = 6.19, SD 4.53</td>
</tr>
<tr>
<td>BC: Vindictive/ Self-Centred</td>
<td>α = .79</td>
</tr>
<tr>
<td></td>
<td>mean = 6.44, SD 4.83</td>
</tr>
<tr>
<td>DE: Cold/Distant</td>
<td>α = .84</td>
</tr>
<tr>
<td></td>
<td>mean = 6.56, SD 5.71</td>
</tr>
<tr>
<td>FG: Socially Inhibited</td>
<td>α = .85</td>
</tr>
<tr>
<td></td>
<td>mean = 8.72, SD 6.31</td>
</tr>
<tr>
<td>HI: Nonassertive</td>
<td>α = .87</td>
</tr>
<tr>
<td></td>
<td>mean = 9.83, SD 6.3</td>
</tr>
<tr>
<td>JK: Overly Accommodating</td>
<td>α = .78</td>
</tr>
<tr>
<td></td>
<td>mean = 9.7, SD 6.3</td>
</tr>
<tr>
<td>LM: Self-Sacrificing</td>
<td>α = .79</td>
</tr>
<tr>
<td></td>
<td>mean = 10.51, SD 5.5</td>
</tr>
<tr>
<td>NO: Intrusive/Needy</td>
<td>α = .76</td>
</tr>
<tr>
<td></td>
<td>mean = 7.76, SD 5.14</td>
</tr>
<tr>
<td>Total</td>
<td>α = .94</td>
</tr>
<tr>
<td></td>
<td>mean = 65.71, SD 30.98</td>
</tr>
</tbody>
</table>

All scales have values of alpha above the minimum requirement of .7 and are comparable to those published on other data sets (e.g. Alden et al., 1990; Horowitz et al., 2000), so each scale was considered sufficiently reliable for use in subsequent analyses (see Chapters 6, 7, and 8).

5.4.1.2. HM Prison sample

Six participants were excluded from the HMP sample (n=120) as the IIP-C was incomplete.

5.4.1.2.1. Structural exploration of the Inventory of Interpersonal Problems-Circumplex Scales

A principal components analysis (PCA) was performed on the summed scores for each of the 8 scales of the IIP-C (Kaiser’s measure of sampling adequacy=.781). Three factors accounting for 86.35% of the variance were extracted and subjected to oblique rotation, which converged in 8 iterations. Some degree of correlation was evident between the components, most noticeably between component I and components II and III (see Table 5.4). There was little correlation between components II and III, consistent with previous analyses of the IIP-C in section 5.5.1.1.1.
Once again, the presence of this large first component and correlation with the remaining two components was suggestive of a large general factor, attributable to individual differences. Therefore, deviation scored scale scores were calculated for each participant. These scale scores were then subjected to PCA.

PCA revealed that two components accounted for 72.89% of the variance, which were extracted and rotated using the direct oblimin method. There was no correlation between the two components (<0.05), so varimax rotation was applied. The structural coefficients and associated item communalities are presented in Table 5.5.

As with the non-offending volunteer sample, the components were labelled ‘Dominance-Submission’ and ‘Coldness-Friendliness’, respectively. The location of the octant scales in 2-dimensional space, relevant to their association with each of the components is presented in Figure 5.2.
The extent to which these data form a circumplex structure will be explored in Chapter 6.

5.4.1.2.2. Reliability of the Inventory of Interpersonal Problems-Circumplex Scales

Items from each of the eight published scales (8 items per scale) underwent Cronbach’s alpha reliability analyses, the results of which are presented in Table 5.6.
Table 5.6: Cronbach’s alpha reliability coefficients for Inventory of Interpersonal Problems-Circumplex Scales: HM Prison sample

<table>
<thead>
<tr>
<th>Scale</th>
<th>Present sample</th>
<th>alpha</th>
<th>mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA: Domineering/Controlling</td>
<td>α = .76</td>
<td>6.01</td>
<td>5.35</td>
<td></td>
</tr>
<tr>
<td>BC: Vindictive/Self-Centred</td>
<td>α = .74</td>
<td>8.18</td>
<td>5.13</td>
<td></td>
</tr>
<tr>
<td>DE: Cold/Distant</td>
<td>α = .83</td>
<td>7.48</td>
<td>6.44</td>
<td></td>
</tr>
<tr>
<td>FG: Socially Inhibited</td>
<td>α = .88</td>
<td>8.87</td>
<td>7.61</td>
<td></td>
</tr>
<tr>
<td>HI: Nonassertive</td>
<td>α = .88</td>
<td>9.84</td>
<td>7.69</td>
<td></td>
</tr>
<tr>
<td>JK: Overly Accommodating</td>
<td>α = .84</td>
<td>9.37</td>
<td>7.09</td>
<td></td>
</tr>
<tr>
<td>LM: Self-Sacrificing</td>
<td>α = .86</td>
<td>11.36</td>
<td>7.34</td>
<td></td>
</tr>
<tr>
<td>NO: Intrusive/Needy</td>
<td>α = .72</td>
<td>6.19</td>
<td>5.3</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>α = .95</td>
<td>87.3</td>
<td>37.64</td>
<td></td>
</tr>
</tbody>
</table>

All scales have values of alpha above the minimum requirement of .7 and demonstrated good reliability, so were considered suitable for use in further analyses.

5.4.1.3. Broadmoor sample

All 56 Broadmoor patients completed the Inventory of Interpersonal Problems-Circumplex Scales.

5.4.1.3.1. Structural exploration of the Inventory of Interpersonal Problems-Circumplex Scales

A principal components analysis (PCA) was performed on the summed scores for each of the 8 scales of the IIP-C (Kaiser’s measure of sampling adequacy=.805). Two factors accounting for 76.75% of the variance were extracted and subjected to oblique rotation, which converged in 6 iterations. The two components were correlated at the level of .471. Structural coefficients are presented in Table 5.7.
This structure clearly differs from those of the non-offending volunteer and HM Prison samples. Component I is comprised of the interpersonal scales associated with the need for attention from others, friendliness, avoidance of confrontation and nonassertiveness. Component II is most strongly comprised of interpersonal scales associated with a lack of identification with and concern for others, preference for isolating oneself from others and a need to control others. As such, the two components appear to represent ‘friendly compliance’ and ‘self-centred coercion’. However, although the Kaiser statistic indicated good sampling for this analysis, this may be an artefact of the strength of the IIP-C measure. The extent to which the ‘general’ factor (found in analyses with the non-offending volunteer and HM Prison samples) influenced the outcome of this analysis on such a small sample is unclear.

In order to investigate this possibility, deviation scored scale scores were calculated for each participant. These scale scores were then subjected to PCA.

PCA revealed that two components accounted for 67.57% of the variance, which were extracted and rotated using the direct oblimin method. There was minimal correlation between the two components (-.13), so varimax rotation was applied. However, the oblimin-rotated solution was more interpretable, relative to previous analyses with the non-offending volunteer and HM Prison samples. The structural coefficients and associated item communalities are presented in Table 5.8.
Table 5.8: Inventory of Interpersonal Problems – Circumplex Scales structural coefficients and item communalities after principal components analysis oblimin rotation of deviation-scores: Broadmoor sample

<table>
<thead>
<tr>
<th></th>
<th>Component I</th>
<th>Component II</th>
<th>communalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA: Domineering/Controlling</td>
<td>.326</td>
<td>.785</td>
<td>.655</td>
</tr>
<tr>
<td>BC: Vindictive/ Self-Centred</td>
<td>-.354</td>
<td>.714</td>
<td>.702</td>
</tr>
<tr>
<td>DE: Cold/Distant</td>
<td>-.687</td>
<td>.408</td>
<td>.711</td>
</tr>
<tr>
<td>FG: Socially Inhibited</td>
<td>-.841</td>
<td>-.251</td>
<td>.716</td>
</tr>
<tr>
<td>HI: Non-assertive</td>
<td>.022</td>
<td>-.738</td>
<td>.549</td>
</tr>
<tr>
<td>JK: Overly Accommodating</td>
<td>.048</td>
<td>-.818</td>
<td>.682</td>
</tr>
<tr>
<td>LM: Self-Sacrificing</td>
<td>.661</td>
<td>-.265</td>
<td>.552</td>
</tr>
<tr>
<td>NO: Intrusive/Needy</td>
<td>.924</td>
<td>.128</td>
<td>.839</td>
</tr>
</tbody>
</table>

As with the non-offending volunteer and HM Prison samples, the components were labelled ‘Dominance-Submission’ and ‘Coldness-Friendliness’, respectively. The location of the octant scales in 2-dimensional space, relevant to their association with each of the components is presented in Figure 5.3.

Figure 5.3: Inventory of Interpersonal Problems-Circumplex Scales component plot in oblimin-rotated space: Broadmoor sample

![Component I: Coldness-Friendliness](image)

![Component II: Dominance-Submission](image)
The extent to which these data form a circumplex structure will be explored in Chapter 6.

5.4.1.3.2. Reliability of the Inventory of Interpersonal Problems-Circumplex Scales

Items from each of the eight published scales (8 items per scale) underwent Cronbach's alpha reliability analyses, the results of which are presented in Table 5.9.

<table>
<thead>
<tr>
<th>Scale Description</th>
<th>Present sample N=56 mentally disordered offenders</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA: Domineering/ Controlling</td>
<td>α = .79</td>
</tr>
<tr>
<td>BC: Vindictive/ Self-Centred</td>
<td>α = .79</td>
</tr>
<tr>
<td>DE: Cold/Distant</td>
<td>α = .86</td>
</tr>
<tr>
<td>FG: Socially Inhibited</td>
<td>α = .87</td>
</tr>
<tr>
<td>HI: Nonassertive</td>
<td>α = .82</td>
</tr>
<tr>
<td>JK: Overly Accommodating</td>
<td>α = .81</td>
</tr>
<tr>
<td>LM: Self-Sacrificing</td>
<td>α = .85</td>
</tr>
<tr>
<td>NO: Intrusive/Needy</td>
<td>α = .75</td>
</tr>
<tr>
<td>Total</td>
<td>α = .95</td>
</tr>
</tbody>
</table>

Table 5.9: Cronbach's alpha reliability coefficients for Inventory of Interpersonal Problems-Circumplex Scales: Broadmoor sample

All scales have values of alpha above the minimum requirement of .7 and demonstrated good reliability, so were considered suitable for use in further analyses.

5.4.2. Aggression Questionnaire

Structural analysis of the Aggression Questionnaire (AQ; Buss and Warren, 2000) is presented for the non-offending volunteer sample only, due to sample size restrictions. Reliability of the AQ scales across each of the samples is also presented.

5.4.2.1. Non-offending volunteer sample

Three participants did not complete the AQ (n=333) so were excluded from analyses. There were 46 missing responses which were substituted using mean scale score values; although the AQ manual (Buss and Warren, 2000) stipulates that the median scale score be computed for missing values, the overall median score in the current
sample is lower than that of the manual (North American norms), so the individual mean scale scores were computed here, consistent with other measures in this questionnaire battery.

5.4.2.1.1. Structural exploration of the Aggression Questionnaire
A principal components analysis (PCA) was performed on all 34 items of the AQ. Five components were extracted (accounting for 49.98% of the variance), consistent with the number of scales (Kaiser’s measure of sampling adequacy = .884). A five-factor oblimin-rotated solution converged in 37 iterations, demonstrating some degree of correlation between components (range <0.01 to .37). Interpretation of the components was complicated by factorially complex items and two apparently redundant components; for this reason, in addition to the high stress of the fit of the factor structure and the lack of correlation between each of the components, an additional PCA was conducted with orthogonal varimax rotation. Five components were extracted (and converged in 16 iterations), the structural coefficients of which and associated item communalities are presented in Table 5.10. For clarity of presentation for the reader, structural coefficients of a value less than 0.3 are not presented. Tabachnick and Fidell (1996) state that, as a general rule, structural coefficients of a value less than 0.32 are not interpreted.

The complex factor structure presented here replicates that of the AQ standardisation sample (n=2138; Buss and Warren, 2000), indicating the relative independence of the constructs measured by the ‘Hostility’, ‘Verbal aggression’ and ‘Physical aggression’ scales. The distribution of the ‘Anger’ items across these three scales would suggest that this construct has a function in the manifestation of both verbal and physical aggression, as well as hostile attitudes, consistent with previous research (Archer, Kilpatrick and Bramwell, 1995; Buss and Warren, 2000). Of the ‘Indirect aggression’ scale, Buss and Warren suggest that this may reflect some level of impulse control; specifically, a lack of such control, with the correlation of items on this scale with ‘Physical aggression’ items indicating an impulsive tendency towards physical aggression, displaced by projection onto objects rather than individuals. Whilst there is some evidence to support this finding in the current factor structure, items on the ‘Indirect aggression’ scale are also associated with ‘Anger’ and ‘Hostility’ items, suggestive of a more latent aggression perhaps more typical of an avoidant interpersonal style. Contrary to Buss and Warren’s hypothesis of ‘Indirect aggression’
Table 5.10: Structural coefficients and item communalities of Aggression Questionnaire items after principal components analysis varimax rotation: non-offending volunteer sample

<table>
<thead>
<tr>
<th>Item</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
<th>Communalities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hostility</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2(hos)</td>
<td>.635</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.451</td>
</tr>
<tr>
<td>5(hos)</td>
<td>.615</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.431</td>
</tr>
<tr>
<td>9(hos)</td>
<td>.54</td>
<td>.4</td>
<td></td>
<td></td>
<td></td>
<td>.476</td>
</tr>
<tr>
<td>16(hos)</td>
<td>.679</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.487</td>
</tr>
<tr>
<td>21(hos)</td>
<td>.355</td>
<td></td>
<td>.322</td>
<td></td>
<td>.303</td>
<td>.452</td>
</tr>
<tr>
<td>33(hos)</td>
<td></td>
<td>.35</td>
<td></td>
<td></td>
<td></td>
<td>.374</td>
</tr>
<tr>
<td><strong>Anger</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3(ang)</td>
<td>.654</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.517</td>
</tr>
<tr>
<td>7(ang)</td>
<td>.627</td>
<td></td>
<td>.438</td>
<td></td>
<td></td>
<td>.625</td>
</tr>
<tr>
<td>12(ang)</td>
<td>.436</td>
<td></td>
<td>.522</td>
<td>.388</td>
<td></td>
<td>.622</td>
</tr>
<tr>
<td>19(ang)</td>
<td>-.388</td>
<td></td>
<td>-.46</td>
<td></td>
<td></td>
<td>.47</td>
</tr>
<tr>
<td>22(ang)</td>
<td>.454</td>
<td></td>
<td>.347</td>
<td></td>
<td></td>
<td>.494</td>
</tr>
<tr>
<td>29(ang)</td>
<td>.612</td>
<td></td>
<td>.528</td>
<td>.468</td>
<td></td>
<td>.498</td>
</tr>
<tr>
<td>32(ang)</td>
<td></td>
<td>.468</td>
<td></td>
<td></td>
<td></td>
<td>.61</td>
</tr>
<tr>
<td><strong>Verbal aggression</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1(ver)</td>
<td>.743</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.595</td>
</tr>
<tr>
<td>4(ver)</td>
<td>.68</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.559</td>
</tr>
<tr>
<td>6(ver)</td>
<td>.711</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.572</td>
</tr>
<tr>
<td>20(ver)</td>
<td>.319</td>
<td></td>
<td>.515</td>
<td></td>
<td>.427</td>
<td></td>
</tr>
<tr>
<td>26(ver)</td>
<td></td>
<td></td>
<td>.487</td>
<td></td>
<td>.421</td>
<td></td>
</tr>
<tr>
<td><strong>Physical aggression</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8(phy)</td>
<td>.719</td>
<td>.336</td>
<td></td>
<td></td>
<td></td>
<td>.671</td>
</tr>
<tr>
<td>10(phy)</td>
<td>.64</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.561</td>
</tr>
<tr>
<td>11(phy)</td>
<td>.437</td>
<td>.512</td>
<td></td>
<td></td>
<td></td>
<td>.517</td>
</tr>
<tr>
<td>17(phy)</td>
<td>.57</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.459</td>
</tr>
<tr>
<td>23(phy)</td>
<td>.74</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.654</td>
</tr>
<tr>
<td>24(phy)</td>
<td>.638</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.479</td>
</tr>
<tr>
<td>25(phy)</td>
<td>.744</td>
<td>.778</td>
<td></td>
<td></td>
<td>.656</td>
<td></td>
</tr>
<tr>
<td>27(phy)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Indirect aggression</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13(ind)</td>
<td>.569</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.391</td>
</tr>
<tr>
<td>14(ind)</td>
<td>.476</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.374</td>
</tr>
<tr>
<td>15(ind)</td>
<td>.433</td>
<td></td>
<td>.361</td>
<td>.409</td>
<td>.451</td>
<td></td>
</tr>
<tr>
<td>18(ind)</td>
<td>.48</td>
<td></td>
<td>.423</td>
<td>.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30(ind)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34(ind)</td>
<td>.539</td>
<td></td>
<td>.331</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Hostility: 2(hos) Other people always seem to get the breaks; 5(hos) At times I feel I have gotten a raw deal out of life; 9(hos) I wonder why sometimes I feel so bitter about things; 16(hos) I wonder what people want when they are nice to me; 21(hos) I sometimes feel that people are laughing at me behind my back; 28(hos) I do not trust strangers who are too friendly; 31(hos) I know that 'friends' talk about me behind my back; 33(hos) At times I am so jealous I can't think of anything else.

Anger: 3(ang) I flare up quickly, but get over it quickly; 7(ang) At times I get very angry for no good reason; 12(ang) I have trouble controlling my temper; 19(ang) I am a calm person; 22(ang) I let my anger show when I do not get what I want; 29(ang) At times I feel like a bomb ready to explode; 32(ang) Some of my friends think I am a hothead.

Verbal aggression: 1(ver) My friends say that I argue a lot; 4(ver) I often find myself disagreeing with people; 6(ver) I can't help getting into arguments when people disagree with me; 20(ver) When people annoy me I may tell them what I think of them; 26(ver) I tell my friends openly when I disagree with them.

Physical aggression: 8(phy) I may hit someone if he or she provokes me; 10(phy) I have threatened people I know; 11(phy) Someone has pushed me so far that I hit him or her; 17(phy) I have become so mad that I have broken things; 23(phy) At times I can't control the urge to hit someone; 24(phy) I get into fights more than most people; 25(phy) If somebody hits me, I hit back; 27(phy) If I have to resort to violence to protect my rights, I will.

Indirect aggression: 13(ind) If I'm angry enough, I may mess up someone's work; 14(ind) I have been mad enough to slam a door when leaving someone behind in the room; 15(ind) When people are bossy, I take my time doing what they want, just to show them; 18(ind) I sometimes spread gossip about people I don't like; 30(ind) When someone really irritates me, I might give him or her the silent treatment; 34(ind) I like to play practical jokes.
items being indicative of a lack of impulse control, such items in the present factor structure (component V) are suggestive of controlled aggression, specifically in relation to 'Verbal aggression' items 20 and 26. In summary, the AQ items appear to represent both confrontational and non-confrontational aggression, in terms of interpersonal approach aggression (e.g. verbal, physical) and interpersonally avoidant (non-confrontational) aggression (e.g. hostility, anger, indirect), whilst accounting for the dynamics of anger and impulse control (or lack of).

5.4.2.1.2. Reliability of the Aggression Questionnaire scales

Items from each of the 5 published scales underwent Cronbach's alpha reliability analyses:

- Hostility (8 items) – Alpha = .80, with a mean scale score of 15.12, SD 5.31.
- Anger (7 items) – Alpha = .83, with a mean scale score of 12.42, SD 4.8.
- Verbal aggression (5 items) – Initial α = .70, with a mean scale score of 11.94, SD 3.61.
- Physical aggression (8 items) – Alpha = .77, with a mean scale score of 12.7, SD 4.53.
- Indirect aggression (6 items) – Initial α = .63, with a mean scale score of 11.97, SD 3.63. The level of α increased to .65 with the removal of item 34. As an adequate level of α is not achieved by removing this item, the 'Indirect aggression' scale will be excluded from subsequent analyses.

These reliability levels are comparable to those published in the Aggression Questionnaire manual (Buss and Warren, 2000), with the exception of the 'Indirect aggression' scale. Mean score values are also similar, with the exception of the 'Physical aggression' scale. The present non-offending volunteer sample achieved a mean score of 3 points lower than the sample of North American males aged between 19-39 years on the 'Physical aggression' scale (published mean score value = 15.5; Buss and Warren, 2000). This may be indicative of cross-cultural differences in the use or reporting of physical aggression.

5.4.2.2. HM Prison and Broadmoor samples

As the HM Prison and Broadmoor samples were not of sufficient size to permit good principal components analysis, reliability analyses only were performed. Four participants of the HMP sample (n=122) and two of the Broadmoor sample (n=54) did not complete the AQ, so were excluded from analyses.
5.4.2.2.1. Reliability analyses of the Aggression Questionnaire scales

Cronbach's alpha reliability coefficients were computed for each of the five scales, the results of which are presented in Table 5.11. In addition, the mean and standard deviation scores for two North American offender samples are presented.

Table 5.11: Cronbach's alpha reliability coefficients, means and standard deviations for the Aggression Questionnaire scales: HM Prison and Broadmoor samples

<table>
<thead>
<tr>
<th></th>
<th>HMP sample (n=122)</th>
<th>Broadmoor sample (n=54)</th>
<th>U.S. MDO sample (n=75) **</th>
<th>U.S. prisoner sample (n=29) **</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hostility (8 items)</td>
<td>α=.84 mean=18.15</td>
<td>α=.84 mean=17.89</td>
<td>mean=19.6 SD 7</td>
<td>mean=17 SD 7</td>
</tr>
<tr>
<td></td>
<td>SD 5.79</td>
<td>SD 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anger (7 items)</td>
<td>α=.84 mean=13.63</td>
<td>α=.77 mean=14.56</td>
<td>mean=14.8 SD 5.8</td>
<td>mean=12.9 SD 5.6</td>
</tr>
<tr>
<td></td>
<td>SD 5.99</td>
<td>SD 5.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbal aggression (5 items)</td>
<td>α=.74 mean=12.07 SD 4.01</td>
<td>α=.69 mean=11.09 SD 3.84</td>
<td>mean=12.7 SD 4.7</td>
<td>mean=10.9 SD 3.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical aggression (8 items)</td>
<td>α=.88 mean=17.57 SD 7.94</td>
<td>α=.83 mean=16.22 SD 6.94</td>
<td>mean=17.3 SD 7</td>
<td>mean=15.1 SD 6.4</td>
</tr>
<tr>
<td>Indirect aggression (6 items)</td>
<td>α=.62 mean=12.28 SD 4.04</td>
<td>α=.72 mean=12.61 SD 4.8</td>
<td>mean=12.4 SD 5.4</td>
<td>Not included</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total AQ</td>
<td>α=.93 mean=73.7</td>
<td>α=.93 mean=72.37</td>
<td>mean=76.9 SD 25</td>
<td>mean=58.2 SD 20</td>
</tr>
<tr>
<td></td>
<td>SD 23.47</td>
<td>SD 23.35</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* The United States mentally disordered offenders sample consisted of males convicted of homicide and remanded to psychiatric treatment (Buss and Warren, 2000)
** United States prisoners with a record of violent offences (Buss and Warren, 2000)

As with the non-offending volunteer sample, 'Indirect aggression' did not demonstrate good reliability among the HM Prison sample. Therefore, the 'Indirect aggression' scale will be excluded from subsequent analyses throughout this thesis.

Although comparable, the U.S. prisoner sample achieved consistently lower mean scores than the HM Prison sample across the 'Hostility', 'Anger', 'Verbal aggression' and 'Physical aggression' scales. Conversely, the U.S. mentally disordered offender sample achieved higher mean scores than the Broadmoor sample on the 'Hostility', 'Verbal aggression' and 'Physical aggression' scores. These findings suggest that there may be differences between North American and British offenders in relation to self-reported aggression. Certainly, differences are acknowledged in the quality and expression of psychopathic traits across U.S. and U.K. male populations (Hart, Cox and Hare, 2003), with British males tending to score an average of 2 points lower
than their North American counterparts on the Psychopathy Checklist: Screening Version (Hart, Cox and Hare, 1995). This is supported by the findings in the previous section, that the non-offending volunteers scored 3 points lower than their North American counterparts. The findings here may be indicative of a need for British norms on the Aggression Questionnaire.

5.4.3. General Perceived Self-Efficacy

Structural analyses of the General Perceived Self-Efficacy questionnaire (GSE; Schwarzer and Jerusalem, 1995) are presented for the non-offending volunteer sample, followed by reliability analyses of the GSE across each of the samples.

5.4.3.1. Non-offending volunteer sample

One participant was excluded from analysis (n=335) as there were no responses provided for this measure. Mean substitution was used to calculate the 22 missing responses, of which no one participant omitted more than 2 responses.

5.4.3.1.1. Structural exploration of the General Perceived Self-Efficacy questionnaire

A principal components analysis (PCA) was performed on the 10 items of the GSE scale (Kaiser's measure of sampling adequacy=.875). Consistent with the hypothesised single-factor structure, one component was selected on the basis of the Kaiser-Guttman rule and examination of the scree plot, which accounted for 41.55% of the variance. Table 5.12 details the unrotated structural coefficients and item communalities.

Table 5.12: Structural coefficients and communalities of General Perceived Self-Efficacy items after principal components analysis: non-offending volunteer sample

<table>
<thead>
<tr>
<th>Item</th>
<th>GSE (41.55%)</th>
<th>Communalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: I can always manage to solve difficult problems if I try hard enough</td>
<td>.639</td>
<td>.408</td>
</tr>
<tr>
<td>2: If someone opposes me I can find the ways and means to get what I want</td>
<td>.471</td>
<td>.222</td>
</tr>
<tr>
<td>3: I am certain that I can accomplish my goals</td>
<td>.627</td>
<td>.393</td>
</tr>
<tr>
<td>4: I am confident that I could deal efficiently with unexpected events</td>
<td>.708</td>
<td>.501</td>
</tr>
<tr>
<td>5: Thanks to my resourcefulness, I can handle unforeseen situations</td>
<td>.7</td>
<td>.49</td>
</tr>
<tr>
<td>6: I can solve most problems if I invest the necessary effort</td>
<td>.647</td>
<td>.419</td>
</tr>
<tr>
<td>7: I can remain calm when facing difficulties because I can rely on my coping abilities</td>
<td>.602</td>
<td>.362</td>
</tr>
<tr>
<td>8: When I am confronted with a problem I can find several solutions</td>
<td>.596</td>
<td>.355</td>
</tr>
<tr>
<td>9: If I am in trouble I can think of a good solution</td>
<td>.72</td>
<td>.519</td>
</tr>
<tr>
<td>10: I can handle whatever comes my way</td>
<td>.697</td>
<td>.486</td>
</tr>
</tbody>
</table>
The low communality of item 2 (.222) indicated that this item was unreliable. This was considered in relation to the reliability analyses of the GSE scale.

5.4.3.1.2. Reliability of the General Perceived Self-Efficacy questionnaire
Analysis of all 10 items yielded a Cronbach’s α reliability coefficient of .84, with a mean scale score of 32.08 (SD 3.76). Item 2 did not adversely affect the reliability analysis, so was included in the total scale.

5.4.3.2. HM Prison and Broadmoor samples
One participant of the HMP sample did not complete the GSE, so was excluded from further analysis (n=125). All 56 Broadmoor patients completed the GSE.

5.4.3.2.1. Reliability of the General Perceived Self-Efficacy questionnaire
Cronbach’s alpha reliability coefficient was computed for the 10 GSE items for each of the two forensic samples, resulting in good values of reliability (HMP α=.88, mean=31.28, SD 5.17; Broadmoor α=.94, mean=29.8, SD 6.57), comparable to the non-offending volunteer sample.

5.4.4. Psychological Estrangement
Structural analysis of the Psychological Estrangement questionnaire (PSE; Hammond, 1988) is presented for the non-offending volunteer sample only, due to sample size restrictions. Reliability of the PSE scales across each of the samples is also presented.

5.4.4.1. Non-offending volunteer sample
Two participants did not complete the PSE, so analyses were conducted on the remaining sample of 334. Thirty missing responses were computed through mean scale score substitution.

5.4.4.1.1. Structural exploration of the Psychological Estrangement questionnaire
Principal components analysis (PCA) was performed on all 30 items of the PSE (Kaiser’s measure of sampling adequacy= .833). Three components were extracted – consistent with the number of scales – which accounted for 35.76% of the unrotated
variance. An oblimin rotation converged in 17 iterations and there was little correlation between the components (range <0.01 to .126), so a varimax rotation was applied (which converged in 6 iterations). Table 5.13 details the rotated structural coefficients and item communalities. Individual scale items were clearly associated with the same components, so components were labelled according to the PSE scales; 'Existential estrangement', 'Social estrangement', and 'Rule-group estrangement'. For clarity of presentation for the reader, structural coefficients of a value less than 0.3 are not presented. Tabachnick and Fidell (1996) state that, as a general rule, structural coefficients of a value less than 0.32 are not interpreted.

Table 5.13: Structural coefficients and item communalities of Psychological Estrangement questionnaire items after principal components analysis varimax rotation: non-offending volunteer sample

<table>
<thead>
<tr>
<th>ee=existential estrangement; se= social estrangement; rge= rule-group estrangement</th>
<th>EE</th>
<th>SE</th>
<th>RGE</th>
<th>Communalties</th>
</tr>
</thead>
<tbody>
<tr>
<td>16(ee) I find it hard to know where I stand from one day to the next</td>
<td>.752</td>
<td>.576</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2(ee) I feel unsure of most things in life</td>
<td>.739</td>
<td>.564</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3(ee) I often feel cut-off from myself</td>
<td>.693</td>
<td>.502</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20(ee) I sometimes cannot help but wonder if anything is worthwhile</td>
<td>.636</td>
<td>.428</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1(ee) I find it easy to work out how to live my life</td>
<td>-.621</td>
<td>.407</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12(ee) I find it difficult to understand what is going on in the world</td>
<td>.578</td>
<td>.347</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11(ee) I sometimes find myself doing things without any idea as to why I am doing them</td>
<td>.575</td>
<td>.379</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19(ee) I am satisfied with my life at present</td>
<td>-.571</td>
<td>.439</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24(ee) I don't seem to be in tune with the way of life around me</td>
<td>.571</td>
<td>-.436</td>
<td>.525</td>
<td></td>
</tr>
<tr>
<td>5(ee) I often feel that there is no meaning in life</td>
<td>.53</td>
<td>.331</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9(ee) I often feel awkward and out of place</td>
<td>.474</td>
<td>-.427</td>
<td>.418</td>
<td></td>
</tr>
<tr>
<td>13(rge) I feel that there are no definite rules to live by in life</td>
<td>.435</td>
<td>*</td>
<td>.267</td>
<td></td>
</tr>
<tr>
<td>18(rge) I believe that there are no right or wrong ways for successful living, just easy and hard ways</td>
<td>.312</td>
<td>*</td>
<td>.157</td>
<td></td>
</tr>
<tr>
<td>10(rge) I am firmly convinced of the political beliefs I hold</td>
<td>-.301</td>
<td>*</td>
<td>.108</td>
<td></td>
</tr>
<tr>
<td>15(se) I enjoy collective activities with other people</td>
<td>.692</td>
<td>.486</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7(se) I am a sociable person</td>
<td>.677</td>
<td>.488</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28(se) I find it pretty easy to sympathise with the feelings of others</td>
<td>.533</td>
<td>.298</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26(se) My greatest satisfaction seems to come from working cooperatively with others</td>
<td>.528</td>
<td>.342</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25(se) Nobody seems to be interested in how I feel about things</td>
<td>.426</td>
<td>-.493</td>
<td>.425</td>
<td></td>
</tr>
<tr>
<td>14(se) I believe that most people really do care what happens to others</td>
<td>.485</td>
<td>.259</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8(ee) I usually know on whom I can count in a crisis</td>
<td>.46</td>
<td>.293</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29(se) I feel that people tend to respect my opinion in most things</td>
<td>-.338</td>
<td>.458</td>
<td>.327</td>
<td></td>
</tr>
<tr>
<td>4(ee) I find that others usually like the same things that I do</td>
<td>.458</td>
<td>.369</td>
<td>.346</td>
<td></td>
</tr>
<tr>
<td>21(rge) I am most comfortable when I have well-defined rules to follow</td>
<td>.632</td>
<td>.416</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23(rge) I have a lot of respect for the law</td>
<td>.597</td>
<td>.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22(ee) I find that social values are changing too fast for my liking</td>
<td>*.336</td>
<td>.455</td>
<td>.323</td>
<td></td>
</tr>
<tr>
<td>6(rge) I find it easy to adapt to new rules and regulations</td>
<td>.431</td>
<td>.287</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17(rge) Rules and regulations are destroying my creative potential</td>
<td>.373</td>
<td>-.384</td>
<td>.287</td>
<td></td>
</tr>
<tr>
<td>30(rge) I believe that the welfare of the community should come before that of the individual</td>
<td>*</td>
<td>.126</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27(se) It is important for me to be involved with a particular group or 'movement'</td>
<td>*</td>
<td>.159</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* indicates lack of correlation with component where other similar items have done so
The varimax-rotated structural coefficients presented in Table 5.13 demonstrate a clear structure for the 'Existential estrangement' (Component I) and 'Social estrangement' (Component II) items. The 'Rule-group estrangement' items are less cohesive and are characterised by poor item communalities. Furthermore, items 27, 14, 8 and 28 of the 'Social estrangement' scale also had poor communalities. These were considered in relation to the reliability analyses.

5.4.4.1.2. Reliability of the Psychological Estrangement scales

Items from each of the pre-determined scales underwent Cronbach's alpha reliability analysis:

- **Existential estrangement** – Initial $\alpha= .85$, with a mean scale score of 43.3, SD 7.78.

- **Social estrangement** – Initial $\alpha= .72$, with a mean 'social estrangement' scale score of 24.67, SD 4.98. Alpha was increased to .74 (mean scale score=21.16, SD 4.72) with deletion of item 27; this item was excluded from subsequent analyses involving this scale as it neither correlated with the component labelled 'Social estrangement' nor demonstrated good communality with other PSE items, as evidenced in Table 5.13.

- **Rule-group estrangement** – Initial $\alpha= .37$, with a mean 'Rule-group estrangement' scale score of 22.28, SD 3.6. The value of $\alpha$ would increase to .48 with the removal of items 10 and 30, but this would not increase the value sufficiently to warrant reliable use of this scale. Therefore, this scale was not included in subsequent analyses.

- **Total psychological estrangement** – Initial $\alpha= .59$, with a mean score of 90, SD 8.5. The value of $\alpha$ would not increase sufficiently with the removal of any items, so the superordinate 30-item scale was not considered to be adequately reliable to be used in subsequent analyses.

The two scales 'Existential estrangement' and 'Social estrangement' were considered to have good reliability coefficients and able to be used in further analyses as scales of psychological estrangement. However, the 'Social estrangement' scale should be used cautiously as several items on this scale have communalities of less than .3, indicating that these items are unreliable.
5.4.4.2. HM Prison and Broadmoor samples

Five HMP sample participants (n=121) and two Broadmoor sample participants (n=54) were excluded from analyses as the PSE was incomplete. Missing responses were computed through mean substitution.

5.4.4.2.1. Reliability of the Psychological Estrangement scales

Cronbach’s alpha reliability coefficients for each of the scales are presented in Table 5.14.

Table 5.14: Cronbach’s alpha reliability coefficients, means and standard deviations for the Psychological Estrangement scales: HM Prison and Broadmoor samples

<table>
<thead>
<tr>
<th>Scale</th>
<th>Broadmoor sample (n=54)</th>
<th>HMP sample (n=121)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existential estrangement</td>
<td>α=.75</td>
<td>α=.85</td>
</tr>
<tr>
<td></td>
<td>mean=39.41</td>
<td>mean=40.16</td>
</tr>
<tr>
<td></td>
<td>SD 7.79</td>
<td>SD 8.85</td>
</tr>
<tr>
<td>Social estrangement</td>
<td>α=.73 (-item 27)</td>
<td>α=.76 (-item 27)</td>
</tr>
<tr>
<td></td>
<td>mean=22.63</td>
<td>mean=21.94</td>
</tr>
<tr>
<td></td>
<td>SD 5.92</td>
<td>SD 5.55</td>
</tr>
<tr>
<td>Rule-group estrangement</td>
<td>α=.42</td>
<td>α=.03</td>
</tr>
<tr>
<td></td>
<td>mean=23.94</td>
<td>mean=24.94</td>
</tr>
<tr>
<td></td>
<td>SD 4.46</td>
<td>SD 3.38</td>
</tr>
<tr>
<td>Total estrangement</td>
<td>α=.65</td>
<td>α=.58</td>
</tr>
<tr>
<td></td>
<td>mean=89.35</td>
<td>mean=89.59</td>
</tr>
<tr>
<td></td>
<td>SD 11.09</td>
<td>SD 9.65</td>
</tr>
</tbody>
</table>

As with the non-offending volunteer sample, item 27 was omitted from the ‘Social estrangement’ scale in the course of analyses with both the HM Prison and Broadmoor samples (HMP sample initial α=.74, mean scale score = 25.38, SD 5.84; Broadmoor sample initial α=.7, mean scale score = 26, SD 6.1). For both samples, alpha was increased with the removal of this item. Therefore, subsequent analyses in this thesis involving this scale will not include item 27, as it also had poor communality with other PSE items, as evidenced in Table 5.13.

As with the non-offending volunteer sample, the ‘Rule-group estrangement’ and superordinate 30-item scales did not demonstrate sufficient reliability with the HM Prison and Broadmoor samples to warrant reliable use in further analyses. Therefore, only the ‘Existential estrangement’ and ‘Social Estrangement’ (item 27 omitted) scales will be used.
5.4.5. Interpersonal Reactivity Index

Structural analysis of the Interpersonal Reactivity Index (IRI; Davis, 1980) is presented for the non-offending volunteer sample only, due to sample size restrictions. Reliability of the IRI scales across each of the samples is also presented.

5.4.5.1. Non-offending volunteer sample

Missing responses were evenly distributed across each of the four scales of the IRI, and were computed using mean scale score substitution (n=336).

5.4.5.1.1. Structural exploration of the Interpersonal Reactivity Index

A principal components analysis (PCA) was performed on the 28 items of the IRI (Kaiser’s measure of sampling adequacy = .848), which suggested the presence of a large ‘general’ factor, due to the high proportion of variance accounted for by the first component, relative to the others, as well as most of the IRI items correlating with Component I. Four factors (accounting for 50.46% of the variance) were extracted, in accordance with the number of scales, and subjected to direct oblimin rotation, which converged in 27 iterations. There was some degree of correlation between Component I with Components II and IV (.166, .245), but no other inter-component correlation, indicative of a ‘general’ factor attributable to individual differences. Therefore, each of the 28 items were deviation scored (each individual item response – individual IRI mean score) and subjected to PCA.

Principal components analysis of the 28 deviation-scored items and examination of the scree plot revealed a four-factor solution, accounting for 45.11% of the total variance. Four components were extracted and were rotated using the direct oblimin technique, converging in 8 iterations. An interpretable solution was presented, although there was little correlation between the components (range <0.01 to .234), so the varimax rotation was applied. The varimax solution converged in 5 iterations, the structural coefficients and item communalities for which are presented in Table 5.15. Individual scale items were clearly associated with the same components, so components were labelled according to the IRI scales; ‘Perspective taking’, ‘Fantasy’, ‘Personal distress’, and ‘Empathic concern’. For clarity of presentation for the reader, structural coefficients of a value less than 0.3 are not presented. Tabachnick and Fidell (1996) state that, as a general rule, structural coefficients of a value less than 0.32 are not interpreted.
### Table 5.15: Structural coefficients and item communalities of the Interpersonal Reactivity Index items after principal components analysis varimax rotation: non-offending volunteer sample

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>PT</th>
<th>FS</th>
<th>PD</th>
<th>EC</th>
<th>Communalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>11(pt)</td>
<td>I sometimes try to understand my friends better by imagining how things look from their point of view</td>
<td>.691</td>
<td></td>
<td></td>
<td></td>
<td>.518</td>
</tr>
<tr>
<td>21(pt)</td>
<td>I believe that there are two sides to every question and try to look at them both</td>
<td>.663</td>
<td></td>
<td></td>
<td></td>
<td>.513</td>
</tr>
<tr>
<td>8(pt)</td>
<td>I try to look at everybody’s side of an argument before I make a decision</td>
<td>.65</td>
<td></td>
<td></td>
<td></td>
<td>.463</td>
</tr>
<tr>
<td>28(pt)</td>
<td>Before criticising somebody I try to imagine how I would feel if I were in their place</td>
<td>.643</td>
<td></td>
<td></td>
<td></td>
<td>.423</td>
</tr>
<tr>
<td>3(pt)</td>
<td>I sometimes find it difficult to see things from another person’s perspective</td>
<td>-.643</td>
<td></td>
<td></td>
<td></td>
<td>.476</td>
</tr>
<tr>
<td>15(pt)</td>
<td>If I am sure I am right about something I do not waste time listening to other peoples’ arguments</td>
<td>-.624</td>
<td></td>
<td></td>
<td></td>
<td>.445</td>
</tr>
<tr>
<td>25(pt)</td>
<td>When I am upset at someone I usually try to ‘put myself in his shoes’ for a while</td>
<td>.622</td>
<td></td>
<td></td>
<td></td>
<td>.422</td>
</tr>
<tr>
<td>4(ec)</td>
<td>Sometimes I do not feel very sorry for other people when they are having problems</td>
<td>-.415</td>
<td></td>
<td></td>
<td>-.32</td>
<td>.329</td>
</tr>
<tr>
<td>23(f)</td>
<td>When I watch a good film I can very easily put myself in the place of the leading character</td>
<td>.794</td>
<td></td>
<td></td>
<td></td>
<td>.637</td>
</tr>
<tr>
<td>26(f)</td>
<td>When I am reading an interesting story I imagine how I would feel if the events in the story were happening to me</td>
<td>.749</td>
<td></td>
<td></td>
<td></td>
<td>.592</td>
</tr>
<tr>
<td>16(f)</td>
<td>After seeing a character on TV or in a film I have felt as though I was like that character</td>
<td>.68</td>
<td></td>
<td></td>
<td></td>
<td>.509</td>
</tr>
<tr>
<td>5(f)</td>
<td>I can really relate to the feelings of characters in a good book</td>
<td>.605</td>
<td></td>
<td></td>
<td></td>
<td>.416</td>
</tr>
<tr>
<td>12(f)</td>
<td>Becoming extremely involved in a good book or film is unusual for me</td>
<td>-.601</td>
<td></td>
<td></td>
<td></td>
<td>.438</td>
</tr>
<tr>
<td>7(f)</td>
<td>I do not usually get emotional (e.g. frightened or weepy) when I watch a film or TV drama</td>
<td>-.389</td>
<td></td>
<td></td>
<td>-.303</td>
<td>.288</td>
</tr>
<tr>
<td>1(f)</td>
<td>I daydream quite often about things that might happen to me</td>
<td>.334</td>
<td></td>
<td></td>
<td></td>
<td>.169</td>
</tr>
<tr>
<td>19(pd)</td>
<td>I am usually pretty good at dealing with emergencies</td>
<td>-.775</td>
<td>.669</td>
<td></td>
<td></td>
<td>.609</td>
</tr>
<tr>
<td>17(pd)</td>
<td>Being in a tense emotional situation scares me</td>
<td>.669</td>
<td></td>
<td></td>
<td></td>
<td>.483</td>
</tr>
<tr>
<td>6(pd)</td>
<td>In emergency situations I feel nervous</td>
<td>.61</td>
<td></td>
<td></td>
<td></td>
<td>.39</td>
</tr>
<tr>
<td>13(pd)</td>
<td>When I see someone get hurt I stay calm</td>
<td>-.608</td>
<td>.558</td>
<td></td>
<td></td>
<td>.542</td>
</tr>
<tr>
<td>24(pd)</td>
<td>I tend to lose control during emergencies</td>
<td>.558</td>
<td></td>
<td></td>
<td></td>
<td>.388</td>
</tr>
<tr>
<td>10(pd)</td>
<td>I sometimes feel helpless when I am in the middle of a very emotional situation</td>
<td>.548</td>
<td></td>
<td></td>
<td></td>
<td>.376</td>
</tr>
<tr>
<td>27(pd)</td>
<td>When I see someone who badly needs help in an emergency I go to pieces</td>
<td>.537</td>
<td></td>
<td></td>
<td></td>
<td>.472</td>
</tr>
<tr>
<td>20(ec)</td>
<td>I am often quite touched by things I see happen</td>
<td>.688</td>
<td></td>
<td></td>
<td></td>
<td>.499</td>
</tr>
<tr>
<td>2(ec)</td>
<td>I often feel sorry for people less fortunate than me</td>
<td>.672</td>
<td></td>
<td></td>
<td></td>
<td>.455</td>
</tr>
<tr>
<td>22(ec)</td>
<td>I would describe myself as a pretty soft-hearted person</td>
<td>.575</td>
<td></td>
<td></td>
<td></td>
<td>.343</td>
</tr>
<tr>
<td>9(ec)</td>
<td>When I see someone being bullied or ripped off I feel a bit protective towards them</td>
<td>.551</td>
<td></td>
<td></td>
<td></td>
<td>.353</td>
</tr>
<tr>
<td>18(ec)</td>
<td>When I see someone being treated unfairly I sometimes do not feel very much pity for them</td>
<td>-.376</td>
<td></td>
<td></td>
<td></td>
<td>.503</td>
</tr>
<tr>
<td>14(ec)</td>
<td>Other peoples’ bad luck does not usually upset me very much</td>
<td>-.327</td>
<td>-.456</td>
<td></td>
<td></td>
<td>.577</td>
</tr>
</tbody>
</table>

The varimax-rotated structural coefficients presented in Table 5.15 demonstrate a clear structure for each of the four scales ‘Perspective taking’, ‘Fantasy’, ‘Personal Distress’ and ‘Empathic Concern’. Items 7 and 1 of the ‘Fantasy’ scale demonstrated...
poor communality with other IRI items, so will be considered in relation to the reliability analyses.

5.4.5.1.2. Reliability of the Interpersonal Reactivity Index scales
Items from each of the pre-determined published scales underwent Cronbach's alpha reliability analyses:

- Perspective taking – Initial $\alpha = .80$ (mean scale score = 16.19, SD 5.26), increased to $\alpha = .82$ with reversed item 15 deleted.
- Fantasy – Initial $\alpha = .74$ (mean scale score = 13.49, SD 5.33), increased to $\alpha = .83$ (mean scale score = 7.81, SD 4.74) with reversed items 7 and 12 deleted.
- Personal distress – Initial $\alpha = .70$ (mean scale score = 8.38, SD 4.14), with an increase to $\alpha = .71$ with the removal of reversed item 13 (mean scale score = 6.13, SD 3.65), and a further increase to $\alpha = .72$ with the removal of reversed item 19 (mean scale score = 4.63, SD 3.24).
- Empathic concern – $\alpha = .67$ (mean scale score = 18.33, SD 4.24), increased to $\alpha = .69$ (mean scale score = 15.43, SD 3.95) with the removal of reversed item 4, further increased to $\alpha = .71$ (mean scale score = 12.77, SD 3.56) with the removal of reversed item 14.
- Total interpersonal reactivity – For all 28 items (each displaying good communalities for a 4-factor solution), $\alpha = .82$ with a mean total score of 56.36 and SD 12.72.

5.4.5.2. HM Prison sample
Two participants of the HMP sample (n=124) were excluded from analyses as the IRI was not sufficiently complete to apply mean substitution; two missing responses were computed in this way.

5.4.5.2.1. Reliability of the Interpersonal Reactivity Index scales
Items from each of the pre-determined published scales underwent Cronbach's alpha reliability analyses:

- Perspective taking – Initial $\alpha = .82$ (mean scale score = 17.55, SD 6.03).
- Fantasy – Initial $\alpha = .52$ (mean scale score = 13.3, SD 4.67), increased to $\alpha = .74$ (mean scale score = 8.01, SD 4.54) with reversed items 7 and 12 removed.
- Personal distress – Initial $\alpha = .66$ (mean scale score = 9.29, SD 4.8), with little increase with the removal of items.
• Empathic concern – Initial $\alpha=.7$ (mean scale score of 20.06, SD 4.92), with little increase in the level of $\alpha$ with the removal of reversed items 4 and 14.

• Total interpersonal reactivity – For all 28 items, $\alpha=.78$, with a mean total score of 60.2 and SD 13.11.

5.4.5.3. Broadmoor sample
There were no missing responses across the Broadmoor sample ($n=56$).

5.4.5.3.1. Reliability of the Interpersonal Reactivity Index scales
Items from each of the pre-determined published scales underwent Cronbach’s alpha reliability analyses:

• Perspective taking – Initial $\alpha=.69$ (mean scale score =16.07, SD 5.65), increased to $\alpha=.78$ (mean scale score=14.18, SD 5.57) with the removal of item 15.

• Fantasy – Initial $\alpha=.53$ (mean scale score=13.82, SD 5.11), increased to $\alpha=.71$ (mean scale score=8.84, SD 4.87) with the removal of items 7 and 12.

• Personal distress – Initial $\alpha=.6$ (mean scale score=11.73, SD 4.91), with little increase with the removal of items.

• Empathic concern – Initial $\alpha=.64$ (mean scale score=19.89, SD 4.85), increased to $\alpha=.72$ (mean scale score=14.82, SD 4.03) with the removal of reversed items 4 and 14.

• Total interpersonal reactivity – For all 28 items, $\alpha=.77$, with a mean total score of 61.52 and SD of 13.91.

5.4.5.4. Summary of reliability analyses for the Interpersonal Reactivity Index
The alpha coefficient values across the three non-offending volunteer, HM Prison and Broadmoor samples are presented in Table 5.16.
Table 5.16: Summary of Cronbach’s alpha reliability coefficients, means and standard deviations for the Interpersonal Reactivity Index scales: non-offending volunteer, HM Prison and Broadmoor samples

<table>
<thead>
<tr>
<th>Items deleted</th>
<th>Non-offending volunteer sample (n=336)</th>
<th>HMP sample (n=124)</th>
<th>Broadmoor sample (n=56)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fantasy</td>
<td>α=.83, mean=7.81, SD 4.74</td>
<td>α=.74, mean=8.01, SD 4.54</td>
<td>α=.71, mean=8.84, SD 4.87</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perspective taking</td>
<td>α=.82, mean=13.39, SD 4.9</td>
<td>α=.81, mean=14.98, SD 5.19</td>
<td>α=.78, mean=14.18, SD 5.57</td>
</tr>
<tr>
<td>Personal distress</td>
<td>α=.7, mean=8.38, SD 4.14</td>
<td>α=.66, mean=9.29, SD 4.8</td>
<td>α=.6, mean=11.73, SD 4.91</td>
</tr>
<tr>
<td>Empathic concern</td>
<td>α=.71, mean=12.77, SD 3.56</td>
<td>α=.7, mean=14.56, SD 3.82</td>
<td>α=.72, mean=14.82, SD 4.03</td>
</tr>
<tr>
<td></td>
<td>α=.82, mean=56.36, SD 12.72</td>
<td>α=.78, mean=60.2, SD 13.11</td>
<td>α=.77, mean=61.52, SD 13.91</td>
</tr>
</tbody>
</table>

Across the three samples, levels of reliability throughout the scales were variable. In order to provide a basis upon which scores across samples could be compared with an adequate level of reliability, it was necessary to omit certain items on the basis of an increase in the level of alpha (whilst maintaining consistency of items within scales across samples). Three of the IRI scales were considered sufficiently reliable for further analyses ('Perspective taking', 'Fantasy' and 'Empathic concern') but the 'Personal distress' scale had an unacceptable level of error of variance to be included in subsequent analyses.

5.5. Assessment of the homogeneity of the non-offending volunteer sample

In order to test for differences of group characteristics between the two modes of completing the questionnaire battery across the non-offending volunteer sample, a series of ANOVAs were carried out between those who completed the paper version of the questionnaire battery (n=92) and a random equivalent-sized sample of those who completed the questionnaires on-line (n=244).

5.5.1. Between-group differences across scales of the Inventory of Interpersonal Problems-Circumplex Scales

Two participants who submitted the paper version of the questionnaire battery did not complete the Inventory of Interpersonal Problems-Circumplex Scales (IIP-C; Horowitz et al., 2000), so were excluded from these analyses. A random sample of 90
participants was generated from those who completed the IIP-C on-line (selecting for proportional representation across the two on-line sampling methods).

Multivariate analysis of variance (MANOVA) with group (on-line, paper version) as the independent variable was performed on the eight scales of the IIP-C: 'Domineering/Controlling', 'Vindictive/Self-Centred', 'Cold/Distant', 'Socially Inhibited', 'Non-assertive', 'Overly Accommodating', 'Self-Sacrificing', 'Intrusive/Needy'. No significant differences were found between the two methods of completing the questionnaire battery (on-line, paper version) in terms of their mean scores across any of the IIP-C scales or the total score ($F(1,171)=1.62$, $p=n/s$). However, we are interested here in the similarity of the two sub-groups of the normative sample, rather than the differences that MANOVA detects. Therefore, group mean scale scores and associated confidence intervals were examined visually. Although there was no statistical difference between the groups on any of the scale scores, examination of the error bars indicated that the two groups may not be similar on the 'Vindictive/Self-Centred', 'Overly Accommodating' and 'Self-Sacrificing' scales, with those participants who completed the paper version of the questionnaire battery scoring higher than their counterparts across each of the scales (see Figures 5.4, 5.5 and 5.6 for mean values and confidence intervals). However, relative to the normal range of scores on these scales, the differences in mean scores between the two non-offending volunteer groups is negligible. Scores for both samples fall within .2 of a standard deviation from each other, and within 1 z-score from the mean score across all eight scales of the IIP-C (see appendix 23 for normal range scores for each scale), so are considered to be sufficiently similar to be classified as a homogeneous group for further analyses involving the IIP-C.
Figure 5.4: Mean scale scores and confidence intervals for the two non-offending volunteer sample methods of response on the 'Vindictive/Self-Centred' scale of the Inventory of Interpersonal Problems-Circumplex Scales.

Figure 5.5: Mean scale scores and confidence intervals for the two non-offending volunteer sample methods of response on the 'Overly Accommodating' scale of the Inventory of Interpersonal Problems-Circumplex Scales.
5.5.2. Between-group differences across scales of the Aggression Questionnaire

Three participants who submitted the paper version of the questionnaire battery did not complete the Aggression Questionnaire (AQ; Buss and Warren, 2000), so were excluded from these analyses. A random sample of 89 participants was generated from those who completed the AQ on-line (selecting for proportional representation across the two on-line sampling methods).

A MANOVA with group (on-line, paper version) as the independent variable was performed on the four scales of the AQ: 'Hostility', 'Anger', 'Verbal aggression', 'Physical aggression'. One multivariate outlier in the 'paper version' group was excluded from analyses. With the use of Wilks' criterion, the scores on the AQ scales were not significantly affected by response method (on-line, paper version), $F(1,172)=1.74$, $p=n/s$. However, univariate $F$ was significant for between-subjects effects on the
'Verbal aggression' scale ($F(1,175)= 4.76, p<0.05$), with the group who completed the AQ on-line scoring significantly higher than those who completed the paper version of the questionnaire battery (see Figure 5.7 for mean values and confidence intervals). There were no other significant differences between groups in terms of their mean scores across scales of the AQ.

According to the Aggression Questionnaire manual (Buss and Warren, 2000), the mean raw score on the 'Verbal aggression' scale is 12.5 for males between the ages of 19 and 39 years, 10.5 for males over 40 years of age. Both of the random sample volunteer groups have comparable mean ages (online=38.1 years; paper version=39.2 years), so the difference is unlikely to be attributable to variation in age. However, the normal range (one standard deviation either side of the mean) of this scale for males in this age range is 8.5 to 17.5, so, relative to the potential variability of scores along this scale, these two random samples can be said to be similar in terms of their scores on the 'Verbal aggression' scale.

Figure 5.7: Mean scale scores and confidence intervals for the two non-offending volunteer sample methods of response on the 'Verbal aggression' scale of the Aggression Questionnaire
An independent samples t-test was performed to test for difference between method-of-completion groups in terms of mean total AQ score. No significant difference was found ($t_{(1,175)}=0.53$, $p=n/s$).

5.5.3. Between-group differences on the General Perceived Self-Efficacy questionnaire

One participant who submitted the paper version of the questionnaires did not complete the General Perceived Self-Efficacy questionnaire (GSE; Schwarzer and Jerusalem, 1995), so was excluded from analysis. A random sample of 91 participants was generated from those who completed the GSE on-line (selecting for proportional representation across the two on-line sampling methods). An independent samples t-test was carried out to test for difference between the mean GSE scale score for each of the two sub-samples (on-line, paper version) of the non-offending volunteers: no significant difference was found ($t_{(1,180)}=0.17$, $p=n/s$).

5.5.4. Between-group differences across scales of the Psychological Estrangement questionnaire

Two participants who submitted the paper version of the questionnaire battery did not complete the Psychological Estrangement questionnaire (PSE; Hammond, 1988), so were excluded from these analyses. A random sample of 90 participants was generated from those who completed the PSE on-line (selecting for proportional representation across the two on-line sampling methods).

A MANOVA with group (on-line, paper version) as the independent variable was performed on two scales of the PSE, 'Existential estrangement' and 'Social estrangement'. There were no significant differences between the two non-offending volunteer groups in terms of their mean scores across the two estrangement scales ($F_{(1,177)}=0.102$, $p=n/s$).

5.5.5. Between-group differences across scales of the Interpersonal Reactivity Index

All 92 participants who submitted the paper version of the questionnaire battery were included in analyses. A random sample of 92 participants was generated from those who completed the Interpersonal Reactivity Index (IRI; Davis, 1980) on-line (selecting for proportional representation across the two on-line sampling methods).
A MANOVA with group (on-line, paper version) as the independent variable was performed on three of the scales of the IRI: 'Fantasy', 'Perspective taking', 'Empathic concern'. With the use of Wilks' criterion, the scores on the IRI scales were significantly affected by response method (on-line, paper version), $F(1,180) = 30.784$, $p<0.01$. Univariate $F$ was significant for between-subjects effects across each of the scales, with those participants who completed the IRI on-line scoring significantly higher than those who completed the paper version: 'Fantasy' $F(1,182)=69.35$, $p<0.01$; 'Empathic concern' $F(1,182)=45.26$, $p<0.01$; 'Perspective taking' $F(1,182)=42.17$, $p<0.01$. Mean scale score values across each of the scales for both groups are presented in Figure 5.8.

**Figure 5.8**: Mean scale scores for the two non-offending volunteer sample methods of response across scales of the Interpersonal Reactivity Index.

In order to further explore these significant differences between method-of-completion groups, mean scores across each of the scales were examined in relation to the normal range of scores for the non-offending volunteer sample. As items were omitted (in the present study) from each of the 'Fantasy', 'Empathic concern' and 'Perspective taking' scales, normative values were calculated specific to this total non-offending volunteer sample of 336 participants. Scores were transformed into t-
scores, using the formula \( t = a + bz \), where \( a \) is the transformed mean value, \( b \) is the transformed standard deviation, and \( z \) is an individual's z-score. Consistent with the t-scores (presented in the respective manuals) for the Inventory of Interpersonal Problems – Circumplex Scales and the Aggression Questionnaire, all transformed scores were generated with a mean score of 50 and standard deviation of 10.

The random sample of 92 participants who completed the on-line version of the questionnaire battery scored within .2 of a standard deviation above the total sample mean score, whereas those who completed the paper version scored between .6 and .7 of a standard deviation from the total sample mean score. Whilst both method-of-completion groups here scored within the normal range for each of the scales (please see appendix 24 for normal range scores for each scale), and within one standard deviation of each other, those who completed the paper version of the IRI scored at the lower end of the normal range across each of the scales, whilst those who completed the on-line version scored within the middle of the normal range across each of the scales. This indicates that those who completed the paper version of the IRI were more likely to score within the lower end of the normal range, whereas those who completed the on-line version scored closer to the mean score for the total non-offending volunteer sample.

5.5.6. Summary of between-groups within-sample tests of difference across scales

The random sample of participants who completed the paper version of the questionnaire battery scored significantly lower than those who completed the on-line version, across the following scales: 'Fantasy', 'Perspective taking' and 'Empathic concern' scales of the Interpersonal Reactivity Index (IRI). A low score on these scales of the IRI is indicative of the lack of general empathic ability. Therefore, a series of analyses were performed to investigate differences between the non-offending method-of-completion groups and the two forensic (HM Prison and Broadmoor) samples.

5.5.7. Between-sample tests for homogeneity of the non-offending volunteer sample

In order to explore the extent to which the non-offending volunteer sub-samples can be considered to be part of an homogeneous super-ordinate sample, random samples of those who completed the on-line (n=60) and paper versions (n=60) of the
questionnaire battery were compared with a random sample of HM Prison residents (n=60) and the Broadmoor sample (n=56).

In order to test for differences in mean scores between the random sample of participants who completed the paper version of the questionnaire battery and the two forensic samples, a MANOVA was performed, with group (paper version, prison, Broadmoor) as the independent variable, across the following scales: 'Fantasy', 'Empathic concern', 'Perspective taking'. One multivariate outlier was identified in the Broadmoor group, so was excluded from analysis.

With the use of Wilks' criterion, a significant main effect of group was found, $F_{(2,170)}=11.41$, $p<0.01$. Univariate $F$ was significant for between-subjects effects for each of the scales: 'Fantasy' $F_{(2,172)}=18.14$, $p<0.01$; 'Empathic concern' $F_{(2,172)}=33.35$, $p<0.01$; 'Perspective taking' $F_{(2,172)}=13.79$, $p<0.01$). The Levene statistic for homogeneity of variance was significant ($p<0.05$) for each of the scales, so post hoc testing employed Dunnett's C. This revealed that the random sample of participants who completed the paper version of the IRI scored significantly lower than the HM Prison and Broadmoor samples across all scales. Examination of the mean scores across the three scales for each of the two non-offending volunteer samples and the HM Prison and Broadmoor samples indicated that those who completed the on-line version of the questionnaire obtained scores comparable to the two forensic samples (see Figure 5.9 for details).

The non-offending volunteers who completed the paper version of the questionnaire battery scored significantly lower across all scales of the Interpersonal Reactivity Index (IRI) than either of the two forensic (HM Prison and Broadmoor) samples, who also completed the paper version. The reason for this is not altogether clear and it can not be concluded that, for the purposes of analyses with the IRI, the non-offending volunteer sample be considered homogeneous. However, these results are indicative that caution should be employed in the interpretation of results using these scales. There is also the possibility that the 'Fantasy', 'Empathic concern' and 'Perspective taking' scales do not discriminate between male violent offenders and non-offenders.
5.6. Chapter summary

A detailed description of the methodology of this thesis was presented. This methodology forms the basis for the studies presented in the following three chapters, in which the thesis aims will be addressed.

This thesis is interested in the relationship between interpersonal style and violent behaviour, and the utility of the Interpersonal Circumplex as a framework within which to explore this in relation to the motivational concerns of both positive and negative agency and communion. Before such an exploration could take place it was important to test both the strength of the Interpersonal Circumplex model and the measures to be used in this thesis. The organising principles of the Interpersonal Circumplex were reflected across Inventory of Interpersonal Problems – Circumplex Scales (Horowitz et al., 2000) analyses across all three samples. All scales were considered to be sufficiently reliable to be employed in further analyses. The Aggression Questionnaire (Buss and Warren, 2000) presented with a complex factor structure, indicative of anger playing a role in the manifestation of verbal and physical aggression, as well as hostile attitudes. The 'Indirect aggression' scale will be excluded from subsequent
analyses as it did not demonstrate consistent reliability across samples. The short, 10-item, General Perceived Self-Efficacy questionnaire (Schwarzer and Jerusalem, 1995) demonstrated good reliability across all three samples. The ‘Rule-group estrangement’ scale was excluded from the Psychological Estrangement questionnaire (Hammond, 1988), as was the ‘Personal Distress’ scale from the Interpersonal Reactivity Index (IRI; Davis, 1980). Of the remaining IRI scales, items were omitted to increase reliability across samples to an acceptable level.

Reliability data for the measures used in this thesis were largely unavailable for British males, so a sample of non-offending British males was pooled from the general population. This sample was found to be largely homogeneous in terms of responses across the scales of the five questionnaires, although some caution with interpretation of results of the Interpersonal Reactivity Index was recommended. This sample will also facilitate an exploration of the 'non-disordered' relationship between interpersonal style and aggressive behaviour. The HM Prison and Broadmoor samples were found to be generally representative of their populations. These samples will form the basis for analyses exploring the relationship between interpersonal style and aggressive and violent behaviour among those who have received a conviction for using the behaviour. Analyses will also explore the potential relative contribution of mental disorder to violent behaviour.
CHAPTER 6

Interpersonal circumplex space

6.1. Aims and overview of the chapter

This chapter aims to generate an interpersonal circumplex structure within which to address subsequent aims in this and remaining empirical chapters. The strength and utility of the structure will also be assessed. Thereafter, this chapter aims to 1) examine differences in interpersonal style between the non-offending, prisoner and mentally disordered offender samples, and 2) explore the extent to which interpersonal style is related to measures of agency and communion. All analyses are based on the samples discussed and described in Chapter 5.

6.2. Background to the present study

As was discussed in more detail in section 3.5 of Chapter 3, the Interpersonal Circumplex was introduced as a structural model of dimensions of human interpersonal behaviour (Leary, 1955), able to theoretically explore both 'normal' and 'abnormal' behaviours along the same continuum (Leary, 1957). Guttman (1954) first used the term 'circumplex model' to refer to a particular kind of non-restrictive correlation pattern having a circular arrangement. The Interpersonal Circumplex was conceptualised in terms of the three principles of circumplexity: 1) the principle of circumplex structure contends that variables which assess interpersonal behaviour will be arranged around a circle in two-dimensional space (Leary, 1957); 2) the principle of complementarity requires that some degree of bi-polarity be observed within the structure, in that the further the position of a given behaviour from the centre of the circle, the closer the opposing behavioural attribute will be to the centre; 3) the principle of vector length states that the longer the vector from the centre to the outer circle, the more deviant the behaviour. Furthermore, the Interpersonal Circumplex is organised around the principles of agency and communion. Together, agency and communion define the universe of content of interpersonal transactions (Wiggins, 1996), and have been conceptualised as two types of personality traits intrinsic to the individual and stable parts of each person's make-up (Lips-Wierma, 2000).
Leary (1957) identified the advantages of employing a circumplex structure and was the first to apply the model to personality traits as an alternative to exploratory factor analysis, with its rotation associated to simple structure. One advantage of the circumplex model of representation of interpersonal variables is that it provides an explicit conceptual definition of the universe of content of interpersonal behaviour (Wiggins, 1979). Therefore, any behaviour that is considered to be interpersonal in nature must be capable of being represented as a vector in the two-dimensional space of the interpersonal circumplex. In addition, the interrelationships between the variables of the circumplex model, following a circular order, permit the location of behaviours for which definition is contextual and non-classificatory. Therefore, the continual circumplex structure is ideal for behaviours for which there are no clear classificatory boundaries, such as violence and aggression.

However, two major criticisms of circumplex models are that 1) they are based on complex hypotheses and only in rare circumstances could such hypotheses be accepted, and 2) the data can often just as readily be explained in terms of simple structure (Kline, 2000). However, Kline (2000) adds that the circumplex model may be useful when it is clear that other models, such as simple structure, do not fit the complexity of the data. An important consideration of circumplex analysis is to sample all sectors of an interpersonal domain equally which, if accomplished, would have the effect of showing the arbitrary nature of statistically computed factors (Plutchik and Conte, 1997). Such a circumplex model would space interpersonal behaviour equally in a circular structure. As such, the axes are arbitrary reference points; the relationships among variables are expressed through the circular network. Any empty sectors within the circumplex might be filled systematically on an iterative basis in additional research (Plutchik and Conte, 1997).

The circumplex model has been applied to an increasing number of conceptual domains: personality (McCrae and Costa, 1989; Schmidt et al., 1999), emotions (Russell, 1997), facial expressions (Myllyniemi, 1982), the development of new psychometric instruments (Alden et al., 1990; Blackburn and Renwick, 1996), interpretation of clinical phenomena (Blackburn, 1998a), and the understanding of vocational choices (Tracey and Rounds, 1997). Phenomena such as interpersonal problems (Alden et al., 1990), covert reaction tendencies (Kiesler et al., 1997), emotions (Plutchik, 1997), and personality (McCrae and Costa, 1989; Trapnell and Wiggins, 1990; Wiggins and Pincus, 2002) have all been found to share the same
conceptual space as interpersonal behaviour. This thesis is interested in the utility of the Interpersonal Circumplex as a framework within which to explore the extent to which interpersonally violent behaviour is motivated by concerns about both positive and negative agency and communion. The Interpersonal Circumplex which will be referred to in this thesis is presented in Figure 6.1.

Interpersonal theory assumes that the two organising structures of agency (typically represented through the ‘Domineering – Non-assertive’ axis) and communion (‘Cold/Distant – Self-sacrificing’ axis) are unrelated (orthogonal) to each other. Interpersonal theory states that, whilst the concepts of agency and communion are considered to be theoretically distinct from each other, human interpersonal (social) behaviour is organised in terms of the two concepts and can be explained in terms of ‘blends’ of the two (for example, an individual can be both highly agentic, or dominant, and highly communal or friendly). Therefore, this chapter is interested in the relative strength of the Interpersonal Circumplex, as well as the extent to which interpersonal style is related to measures of agency and communion.
Self-efficacy is the cornerstone of personal agency (Bandura, 2001, 1992a), influencing both personal and interpersonal action. People with a high sense of perceived self-efficacy tend to interpret demands and problems more as challenges than as threats or subjectively uncontrollable events, whereas individuals who are characterised by low perceived efficacy are prone to self-doubts, anxiety arousal, threat appraisals of events and perceptions of coping deficiencies when confronted with difficult situations and demands (Jersusalem and Mittag, 1995). Within the interpersonal theoretical framework, it could be hypothesised that self-efficacy would be predicted by the ‘Domineering – Non-assertive’ axis of the Interpersonal Circumplex, with high self-efficacy being associated with a domineering interpersonal style, and low self-efficacy being more strongly associated with a non-assertive interpersonal style.

Communion refers to the extent to which an individual participates and feels a part of their environment, and is manifested in love, intimacy, friendship, care and community with others (Lips-Wierma, 2000). As such, it could be hypothesised that one’s perception of alienation from others, or psychological estrangement, would be predicted by a lack of communion with others. Furthermore, it could also be hypothesised that the extent to which one is able to experience communion with others would be predicted by one’s relative ability to take on the emotions and experiences of others. Therefore, within the interpersonal theoretical framework, it is hypothesised here that a high level of psychological estrangement will be predicted by a high score on the ‘Cold/Distant’ scale of the Inventory of Interpersonal Problems – Circumplex Scales (IIP-C; Horowitz et al., 2000), whereas a high score on the ‘Self-Sacrificing’ scale will be associated with a low level of psychological estrangement. Furthermore, it is anticipated that a high level of empathic concern and perspective-taking ability will be predicted by a high score on the ‘Self-Sacrificing’ scale, whereas these constructs will be associated with a low score on the ‘Cold/Distant’ scale.

6.3. Assessment of the circumplex structure of the Inventory of Interpersonal Problems – Circumplex Scales

Many tests of circumplex structure in the published literature have been subjective (specifically, the ‘eyeball test’) or so opaque as to deny replication. Recent advances in circumplex methodology (see Acton and Revelle, 2002 and 2004, for a full review) have presented more systematic ways of assessing circumplex criteria (complementarity, equal spacing and constant radius), so they were applied here to
verify or refute the application of a circumplex model to interpersonal behaviour. Provided that the variables are ordered in the correct sequence (i.e. PA, BC ... NO: see Figure 6.1), complementary should be a function of equal spacing and constant radius.

6.3.1. Structure of the non-offending volunteer interpersonal space

Principal components analysis of the deviation scored scale scores of the Inventory of Interpersonal Problems – Circumplex Scales (IIP-C; Horowitz et al., 2000) was performed on the responses of 334 British male non-offending volunteers (see section 5.4.4.1. of Chapter 5). Two components ('Dominance-Submission', 'Coldness-Friendliness') which reflected the axes of the Interpersonal Circumplex were generated, the structural coefficients of which are plotted in varimax-rotated space in Figure 6.2.

Figure 6.2: Inventory of Interpersonal Problems-Circumplex Scales component plot in varimax-rotated space: non-offending volunteer sample
Variables were ordered in the correct theoretical sequence (i.e. 'Domineering/Controlling', 'Vindictive/Self-Centred' ... 'Intrusive/Needy') and appeared to form a circumplex structure. Furthermore, complementary scales were diametrically-opposed (e.g. 'Domineering/Controlling' – 'Non-assertive'; 'Cold/Distant' – 'Self-sacrificing'). In order to test the assumption of circumplex structure, two statistical tests were applied to the structural coefficients to explore the circumplex criteria of constant radius (vector length) and equal spacing of variables.

6.3.1.1. Constant radius
The Fisher Test is a good measure of constant radius (equal vs unequal axes; Acton and Revelle, 2004), the index of which is the coefficient of variation of each of the variables from the centre of the circle, or a variable's vector length (Fisher, 1997). The formula for the Fisher Test is presented in Figure 6.3.

\[
\text{Fisher Test} = \frac{\sigma X_v}{X_v}, \quad \text{where } X_v = \sum_{f=1}^{nf} \Phi_{fv}^2\]

and where \(v\) is the number of variables, \(f\) is the factor, \(nf\) is the number of factors, and \(\Phi_{fv}\) denotes the factor loading on factor \(f\) and variable \(v\).

The mean vector length provides an estimate of the radius of the circle, and the standard deviation of vector lengths provides an estimate of scatter around the circumference (Acton and Revelle, 2004). It can be said with some degree of confidence that a Fisher Test value of less than 0.10 represents the presence of equal vector length (Acton and Revelle, 2004). This value would indicate that the points on the circumplex are within 10% of its radius (about 5% on each side; Fisher, 1997).

Principal components analysis of the deviation-scored scale scores of the IIP-C generated structural coefficients for each of components I and II (see section 5.4.1.1.1. of Chapter 5). The unrotated structural coefficients were used here to determine the radius of each of the scales plotted in 2-dimensional space, using the trigonometric formula \(x^2+y^2=z^2\). The unrotated structural coefficients are presented in Table 6.1.
Table 6.1: Inventory of Interpersonal Problems-Circumplex Scales unrotated structural coefficients after principal components analysis: non-offending volunteer sample

<table>
<thead>
<tr>
<th></th>
<th>Component I x</th>
<th>Component II y</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA: Domineering/Controlling</td>
<td>.643</td>
<td>.544</td>
</tr>
<tr>
<td>BC: Vindictive/ Self-Centred</td>
<td>.814</td>
<td>-.040</td>
</tr>
<tr>
<td>DE: Cold/Distant</td>
<td>.588</td>
<td>-.498</td>
</tr>
<tr>
<td>FG: Socially Inhibited</td>
<td>.106</td>
<td>-.823</td>
</tr>
<tr>
<td>HI: Non-assertive</td>
<td>-.677</td>
<td>-.496</td>
</tr>
<tr>
<td>JK: Overly Accommodating</td>
<td>-.837</td>
<td>-.069</td>
</tr>
<tr>
<td>LM: Self-Sacrificing</td>
<td>-.582</td>
<td>.510</td>
</tr>
<tr>
<td>NO: Intrusive/Needy</td>
<td>-.040</td>
<td>.874</td>
</tr>
</tbody>
</table>

The mean vector length or radius was 0.82, with a standard deviation of 0.03. Therefore, the coefficient of variation (Fisher Test value) was 0.04. As this is lower than the critical value of .11 (α=.05), the null hypothesis that the axes are unequal can be rejected and the criterion of constant radius can be said to be met. The points on the circumplex are within 4% of its radius (about 2% on each side).

Equal vector length is not sufficient in itself to verify circumplex structure, as simple structure can also demonstrate constant radius (Acton and Revelle, 2004). In addition to constant radius, the principal of equal spacing must also be demonstrated prior to the establishment of circumplex structure.

6.3.1.2. Equal spacing

The Gap Test (Upton and Fingleton, 1989) is primarily a measure of equal spacing of variables, the index of which is the coefficient of variation of the observed location of variables from their theoretical position. The formula for the Gap Test is presented in Figure 6.4.

Figure 6.4: Formula for the Gap Test of equal spacing

\[
\text{Gap Test} = \sigma^2 \text{ of } X_v
\]

where \(X_v=(\theta_v+1-\theta_v)\) for \(v=1\) to \((nv-1)\), and \(X_v=(2\pi+\theta_{nv}-\theta_v)\) for \(v=nv\)

and where \(v\) is the variable, \(nv\) is the number of variables, and \(\theta_v\) is the angular position of a variable on the circumplex.
The Gap Test is based on the principal that the distance between adjacent variables in a circumplex structure should have minimal variance (Upton and Fingleton, 1989). As such, this is also a measure of whether variables can be said to be located between axes in two-dimensional space (the circumplex principle of interstitiality) or whether the level of variance is more representative of simple structure (i.e., a higher level of variance would be typical of a structure where variables were clustered together). The Gap Test has been found to be both a good measure of equal spacing of variables (Acton and Revelle, 2002; 2004) and sensitive to interstitiality (Acton and Revelle, 2004). The critical test value relative to raw scored data has been suggested at 0.14 (where α=.05; Acton and Revelle, 2002); the critical value for deviation scored data is considered to be 0.3 (Acton and Revelle, 2004). A Gap Test value of less than the critical value would indicate equal spacing and interstitiality.

The unrotated structural coefficients of the two components (generated from principal components analysis of the IIP-C; see Table 6.1) were used here to assess equal spacing using the Gap Test. The spatial distances between each of the adjacent variables were computed, relative to their theoretical orientation in circumplex space, and the variance of these observed locations determined. This resulted in a Gap Test coefficient of 0.01 (below the critical value of 0.3 for deviation scored data); therefore, the null hypothesis of simple structure was rejected.

6.3.1.3. Summary

When plotted in two-dimensional space, the eight scales of the IIP-C were ordered according to their theoretical location (i.e., PA, BC ... NO), demonstrated constant radius (Fisher Test=.04) and equal spacing (Gap Test=.01), indicating that the IIP-C scales do indeed form a circumplex structure and that this is a useful model for representing the interpersonal domain.

6.3.2. Structure of the HM Prison sample interpersonal space

Principal components analysis of the deviation scored scale scores of the IIP-C was performed on the responses of 120 British male prisoners (see section 5.4.1.2.1. of Chapter 5). Two components which reflected the axes of the Interpersonal Circumplex were generated, the structural coefficients of which are plotted in Figure 6.5.
Variables were ordered in the correct theoretical sequence (i.e. 'Domineering/Controlling', 'Vindictive/Self-Centred' ... 'Intrusive/Needy') and appeared to form a circumplex structure. However, the space appeared to be somewhat distorted, with an apparent spatial separation of the 'Domineering/Controlling', 'Vindictive/Self-Centred' and 'Cold/Distant' from the other variables. The Fisher and Gap Tests were also applied to these unrotated structural coefficients, in order to assess circumplexity among these data.

6.3.2.1. Constant radius

The unrotated structural coefficients are presented in Table 6.2.
Table 6.2: Inventory of Interpersonal Problems—Circumplex Scales unrotated structural coefficients after principal components analysis: HM Prison sample

<table>
<thead>
<tr>
<th></th>
<th>Component I</th>
<th>Component II</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>x</td>
<td>y</td>
</tr>
<tr>
<td>PA: Domineering/Controlling</td>
<td>.798</td>
<td>-.400</td>
</tr>
<tr>
<td>BC: Vindictive/ Self-Centred</td>
<td>.866</td>
<td>-.068</td>
</tr>
<tr>
<td>DE: Cold/Distant</td>
<td>.638</td>
<td>.580</td>
</tr>
<tr>
<td>FG: Socially Inhibited</td>
<td>-.122</td>
<td>.828</td>
</tr>
<tr>
<td>HI: Non-assertive</td>
<td>-.619</td>
<td>.608</td>
</tr>
<tr>
<td>JK: Overly Accommodating</td>
<td>-.846</td>
<td>-.084</td>
</tr>
<tr>
<td>LM: Self-Sacrificing</td>
<td>-.614</td>
<td>-.606</td>
</tr>
<tr>
<td>NO: Intrusive/Needy</td>
<td>-.055</td>
<td>-.782</td>
</tr>
</tbody>
</table>

The mean vector length or radius was 0.85, with a standard deviation of 0.03. Therefore, the coefficient of variation (Fisher Test value) was 0.04. As this is lower than the critical value of .11 (α=.05), the null hypothesis that the axes are unequal can be rejected and the criterion of constant radius can be said to be met. The points on the circumplex are within 4% of its radius (about 2% on each side).

6.3.2.2. Equal spacing

The spatial distances between each of the adjacent variables were computed, relative to their theoretical orientation in circumplex space, and the variance of these observed locations determined. This resulted in a Gap Test coefficient of 0.03 (below the critical value of 0.3 for deviation scored data); therefore, the null hypothesis of simple structure was rejected.

6.3.2.3. Summary

When plotted in two-dimensional space, the eight scales of the IIP-C demonstrated constant radius (Fisher Test=0.04) and equal spacing (Gap Test=0.03), indicating that the IIP-C scales form circumplex structure and represent the interpersonal domain in the HM Prison sample.

6.3.3. Structure of the Broadmoor sample interpersonal space

Principal components analysis of the deviation scored scale scores of the IIP-C was performed on the responses of 56 British male mentally disordered violent offenders (see section 5.4.1.3.1. of Chapter 5). Two components which reflected the axes of
the Interpersonal Circumplex were generated, the structural coefficients of which are plotted in Figure 6.6.

 Variables were ordered in the correct theoretical sequence (i.e. 'Domineering/Controlling', 'Vindictive/Self-Centred' ... 'Intrusive/Needy') and appeared to form a circumplex structure. However, the space appeared to be somewhat distorted, with the 'Non-assertive' and 'Overly Accommodating' variables clustering close to each other, indicating that these scales have most association with the 'Domineering - Non-assertive' axis. As such, these variables are not located relative to their theoretically diametrically-opposed scales of 'Domineering/Controlling' and 'Vindictive/Self-centred' respectively. The Fisher and Gap Tests were also applied to these unrotated structural coefficients, in order to assess circumplexity among these data.

6.3.3.1. Constant radius

The unrotated structural coefficients are presented in Table 6.3.
Table 6.3: Inventory of Interpersonal Problems-Circumplex Scales unrotated structural coefficients after principal components analysis: Broadmoor sample

<table>
<thead>
<tr>
<th></th>
<th>Component I</th>
<th>Component II</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>x</td>
<td>y</td>
</tr>
<tr>
<td>PA: Domineering/Controlling</td>
<td>.740</td>
<td>-.328</td>
</tr>
<tr>
<td>BC: Vindictive/ Self-Centred</td>
<td>.255</td>
<td>-.798</td>
</tr>
<tr>
<td>DE: Cold/Distant</td>
<td>-.165</td>
<td>-.827</td>
</tr>
<tr>
<td>FG: Socially Inhibited</td>
<td>-.710</td>
<td>-.460</td>
</tr>
<tr>
<td>HI: Non-assertive</td>
<td>-.485</td>
<td>.560</td>
</tr>
<tr>
<td>JK: Overly Accommodating</td>
<td>-.523</td>
<td>.639</td>
</tr>
<tr>
<td>LM: Self-Sacrificing</td>
<td>.245</td>
<td>.701</td>
</tr>
<tr>
<td>NO: Intrusive/Needy</td>
<td>.680</td>
<td>.614</td>
</tr>
</tbody>
</table>

The mean vector length or radius was 0.82, with a standard deviation of 0.05. Therefore, the coefficient of variation (Fisher Test value) was 0.07. As this is lower than the critical value of .11 (α=.05), the null hypothesis that the axes are unequal can be rejected and the criterion of constant radius can be said to be met. The points on the circumplex are within 7% of its radius (about 3.5% on each side).

6.3.3.2. Equal spacing

The spatial distances between each of the adjacent variables were computed, relative to their theoretical orientation in circumplex space, and the variance of these observed locations determined. This resulted in a Gap Test coefficient of 0.11 (below the critical value of 0.3 for deviation scored data); therefore, the null hypothesis of simple structure was rejected.

6.3.3.3. Summary

When plotted in two-dimensional space, the eight scales of the IIP-C demonstrated constant radius (Fisher Test=0.07) and equal spacing (Gap Test=0.11), indicating that the IIP-C scales form circumplex structure and represent the interpersonal domain in the Broadmoor sample.

6.3.4. Summary of analyses of circumplex structure

The Fisher and Gap Tests (Fisher, 1997; Upton and Fingleton, 1989) were applied to the unrotated structural coefficients of the Inventory of Interpersonal Problems-Circumplex Scales deviation-scored data across the three samples: non-offending volunteer, HM Prison and Broadmoor. The circumplex principles of constant radius,
equal spacing, interstitiality, and complementarity were demonstrated across all three samples. These analyses provide this thesis with a firm structural basis within which to explore the relationship between interpersonal style and aggressive and violent behaviour.

6.4. Between-sample tests of difference across scales of the Inventory of Interpersonal Problems – Circumplex Scales

In order to meet one aim of the thesis - to explore whether there are differences in interpersonal style across offender groups – multivariate analysis of variance (MANOVA) with group (a random sample of 60 non-offending volunteers, 56 violent offender patients at Broadmoor Hospital, a random sample of 60 violent offenders within HM Prison Service) as the independent variable, was performed across the eight scales of the Inventory of Interpersonal Problems-Circumplex Scales (IIP-C; Horowitz et al., 2000): Domineering/Controlling, Vindictive/Self-Centred, Cold/Distant, Socially Inhibited, Non-Assertive, Overly Accommodating, Self-Sacrificing, Intrusive/Needy. Using Wilks’ criterion, a main effect of group was found \((F(2,166)=2.43, p<0.01)\), with significant between-groups effects on the ‘Vindictive/Self-Centred’ \((F(2,173)=4.62, p<0.01)\) and ‘Cold/Distant’ \((F(2,173)=3.25, p<0.05)\) scales. Post hoc (Tukey’s HSD) testing revealed that the prison group scored significantly higher than the non-offending volunteer group on the ‘Vindictive/Self-Centred’ scale \((p<0.05)\). Post hoc (Dunnett’s C) testing of the ‘Cold/Distant’ effect revealed that the Broadmoor sample scored significantly higher than the non-offending volunteers on this scale. Mean values across samples for this scale are presented in Figure 6.7.
Despite significant differences between the non-offending volunteers and the two forensic (HM Prison and Broadmoor) samples, all scores fell within the normal range, albeit with the forensic samples approaching the higher end of this range relative to normative published data (Horowitz et al., 2000).

No other significant differences were found between any of the samples across scales of the IIP-C. Examination of the mean scale scores across each of the eight scales suggested that there were different patterns of responses across the groups, indicative of a difference in the type of interpersonal problems reported. Specifically, the Broadmoor and HM Prison samples reported more problems on the 'Vindictive/Self-Centred' and 'Cold/Distant' scales, whilst the random sample of HM prisoners reported more problems on the 'Self-Sacrificing' scale and less than the Broadmoor and random non-offending volunteer sample on the 'Intrusive/Needy' scale. All scores fell within the middle of the normal range presented in the IIP-C manual (Horowitz et al., 2000), as well as that of the normal range generated from the total 334 non-offending volunteer participants in the present study. Figure 6.8 presents the mean scale scores for each of the eight scales across the three samples.
 Whilst the lack of statistically significant difference across scales of the IIP-C and samples may appear surprising, this should be theoretically consistent with the circumplex structure that this measure has demonstrated in section 6.3 of this chapter. Any given individual’s interpersonal style, as measured by the IIP-C and represented in circumplex space, is characterised by a higher score on one scale, slightly lower scores on adjacent scales, and a decrease in scores towards the lowest score on the scale in the opposite space of the circumplex. By necessity, there will be overlap between profiles of responses across individuals’ interpersonal styles. The very nature of the fact that circumplex structure (using the IIP-C) has been generated here, indicates that a variety of interpersonal problems have been endorsed to varying degrees across both the non-offending volunteer and forensic samples. As such, this will provide a good basis for the further exploration of the interpersonal styles of violent offenders in the following chapter. These results will be discussed further in section 6.7 of this chapter.
6.4.1. Interpersonal profile location in non-offending volunteer interpersonal space

One way of highlighting the degree of dissimilarity of interpersonal profiles across the non-offending volunteer, HM Prison and Broadmoor samples is by plotting these profiles relative to each other. The non-offending volunteer sample raw scale scores were transformed into t-scores, using the formula \( t = a + bz \), where \( a \) is the transformed mean value, \( b \) is the transformed standard deviation, and \( z \) is an individual's z-score. Consistent with the t-scores presented in the manual for the Inventory of Interpersonal Problems – Circumplex Scales (IIP-C; Horowitz et al., 2000), all transformed scores were generated with a mean score of 50 and standard deviation of 10. Therefore, this generated an IIP-C profile with a mean of 50 across all scales for the non-offending volunteer sample. The mean HM Prison and Broadmoor scores were then calculated across each of the IIP-C scales. These scores were transformed into t-scores, relative to the non-offending sample standardised values. The two HM Prison and Broadmoor IIP-C profiles, relative to that of the non-offending volunteers is presented in Figure 6.9.

Figure 6.9: Inventory of Interpersonal Problems-Circumplex Scales profile for the HM Prison and Broadmoor samples, relative to the non-offending volunteer sample t-scores

![Diagram of IIP-C profiles](image-url)
Figure 6.9 highlights that the Broadmoor sample are characterised by an IIP-C profile oriented more towards the ‘Vindictive/Self-Centred’, ‘Cold/Distant’, ‘Socially Inhibited’ and ‘Non-assertive’ scales, relative to the non-offending volunteer sample. The HM Prison sample are characterised by the ‘Vindictive/Self-Centred’, ‘Cold/Distant’ and ‘Self-Sacrificing’ scales, as well as a relatively low score on the ‘Intrusive/Needy’ scale. The only area unique to the non-offending volunteer sample is between the ‘Intrusive/Needy’ and ‘Self-Sacrificing’ scales.

6.4.2. Summary

Between-sample differences indicate that, whilst interpersonal style (as indexed by the IIP-C) does not discriminate between the two forensic (HM Prison and Broadmoor) groups, there are differences between both of these samples and the non-offending volunteers on two specific interpersonal variables. This is not unexpected, given that a high score on the ‘Vindictive/Self-Centred’ scale is indicative of someone who expresses hostility and anger towards others, with little regard for their welfare, whereas a high score on the ‘Cold/Distant’ scale may be typical of someone who feels that they are unable to form attachments with others, prefer their own company and lack warmth and generosity towards others.

The differences and similarities between the HM Prison and Broadmoor samples were presented pictorially in Figure 6.9. Relative to the non-offending volunteer sample, the HM Prison and Broadmoor profiles occupy a greater area of the interpersonal circumplex on the ‘Domineering/Controlling – Cold/Distant – Nonassertive’ side than the more friendly, nurturant side. Specifically, the two forensic samples reported more interpersonal problems than the non-offending volunteers on the ‘Vindictive/Self-centred’, ‘Cold/Distant’ and ‘Socially Inhibited’ scales. These findings will be discussed further in section 6.7.

6.5. Between-sample tests of difference across scales of the General Perceived Self-Efficacy, Psychological Estrangement and Interpersonal Reactivity Index questionnaires

Prior to exploring the extent to which interpersonal style is related to measures of agency and communion, a series of between-sample tests were performed across scales of the General Perceived Self-Efficacy (GSE; Schwarzer and Jerusalem, 1995), Psychological Estrangement (PSE; Hammond, 1988) and Interpersonal Reactivity Index (IRI; Davis, 1980) questionnaires. The purpose of this was to identify
significant differences between the samples across each of these scales, in order to supplement interpretation of the analyses which address this aim in the following section (6.6.).

6.5.1. Between-sample tests of difference on scores of the General Self-Efficacy (GSE) questionnaire

Random groups of 60 participants were drawn from each of the non-offending volunteer and HM Prison samples. These were entered into analysis with the full potential sample of 56 Broadmoor patients.

A one-way ANOVA was performed to test for differences in mean GSE score between samples (non-offending volunteers, HM Prison, Broadmoor). A significant difference was found ($F(2,173)=5.85, p<0.01$) between samples; post hoc (Dunnett's C) testing revealed that the random sample of non-offending volunteers scored significantly higher than each of two forensic samples. Mean GSE scale scores for each of the groups are presented in Figure 6.10.

Figure 6.10.: Mean scores for the General Self-Efficacy scale across each of the non-offending volunteer, HM Prison and Broadmoor samples
The non-offending volunteers reported a significantly higher sense of personal control than the two forensic samples, indicating that, in general, they feel more able to cope with difficulties and are able to achieve their targets in life. Of course, this may be an artefact of the nature of the environmental constraints of the samples. The relatively low score achieved here by the Broadmoor sample may be related to a perception of an external locus of control, a common feature among individuals with mental disorder.

6.5.2. Between-sample analysis of scores on Psychological Estrangement (PSE) questionnaire

Two participants in the Broadmoor sample were excluded from analysis (n=54), as the PSE was incomplete. Random groups of 60 participants were drawn from each of the non-offending volunteer and HM Prison samples.

A multivariate analysis of variance (MANOVA) was performed with sample (non-offending, HM Prison, Broadmoor) as the independent variable, to test for differences in mean scores across two scales of the PSE: 'Existential estrangement', 'Social estrangement'. With the use of Wilks' criterion, a significant main effect of group was found, $F(2,170)=2.44$, $p<0.05$. Univariate $F$ was significant for between-subjects effects for 'Existential estrangement', $(F(2,171)=4.84$, $p<0.01)$. Post hoc (Tukey's HSD) testing revealed that the random sample of non-offending volunteers scored significantly higher on this scale than the HM Prison and Broadmoor samples ($p<0.05$). Mean 'Existential estrangement' scores for each of the groups are presented in Figure 6.11.
For this scale, a low score indicates a high level of existential estrangement. As such, the non-offending volunteer sample reported the experience of significantly less existential estrangement than the Broadmoor and HM Prison samples. This indicates that the Broadmoor patients and prisoners in these samples are more psychologically distant from their self and are more confused about the state of the world around them than the non-offending volunteers. From these results, it is not possible to determine whether the high security hospital or prison environments influenced the offenders' self-reports of existential estrangement, or whether the Broadmoor patients and prisoners in these samples characteristically feel psychologically distant from themselves. The 'Existential estrangement' scale includes items such as 'I find it easy to work out how to live my life' and 'I feel unsure of most things in life'. This suggests that this existential estrangement is perhaps characteristic of these groups of offenders, as these statements are not specific to a particular period of time and appear to assess existential estrangement more generally, rather than specifically. However, items such as 'I find it hard to know where I stand from one day to the next', 'I am [dis-] satisfied with my life at present' (reversed item) and 'I sometimes cannot help but wonder if anything is worthwhile' suggest that environmental...
restrictions in addition to inconsistent boundaries and rules may also be relevant in the fostering of existential estrangement.

6.5.3. Between-sample tests of difference across scales of the Interpersonal Reactivity Index (IRI)

One participant in the Broadmoor sample was identified as a multivariate outlier, so was excluded from analysis (n=55). Random groups of 60 participants were drawn from each of the non-offending volunteer and HM Prison samples.

A multivariate analysis of variance (MANOVA) was performed with sample (non-offending volunteers, HM Prison, Broadmoor) as the independent variable, to test for differences in mean scores across two scales of the IRI: Empathic concern, Perspective taking. The 'Fantasy' scale was excluded from analysis as this was not considered to reflect (lack of) communion with others. Using Wilks' criterion, a main effect of group was found (F (4,171)=4.40, p<0.01), with the significant differences between groups found on the 'Empathic concern' (F (2,172)=8.78, p<0.01) scale. Post hoc (Tukey's HSD) testing revealed that the random sample of non-offending volunteers scored significantly lower on this scale than the random sample of prisoners (p<0.01) and patients at Broadmoor hospital (p<0.01). Mean 'Empathic concern' scores for each of the groups are presented in Figure 6.12.
Figure 6.12.: Mean 'Empathic concern' scale scores across each of the non-offending volunteer, HM Prison and Broadmoor samples

![Graph showing mean scale scores for 'Empathic concern' across non-offenders, Broadmoor, and HM Prison samples.]

A high score on this scale indicates the ability to feel compassion and concern for others having negative experiences. This indicates that the Broadmoor patients and HM prisoners have a higher experience of empathic concern for others than the non-offending volunteer sample. This will be discussed further in section 6.7.

The 'Perspective taking' scale includes items such as 'I try to look at everybody's side of an argument before I make a decision' and 'I sometimes try to understand my friends better by imagining how things look from their point of view'. The lack of significant differences between the samples on this scale may be indicative of insight-related difficulties, particularly in relation to the HM Prison and Broadmoor samples. Most of the items on this scale state that one 'tries' to do something. It is possible that violent offenders do in fact try to appreciate the perspective of another, but are not very good at doing so. This will be discussed further in section 6.7.

6.5.4. Summary

A series of analyses of variance were performed to test for differences between the non-offending volunteer, HM Prison and Broadmoor samples on measures of self-
efficacy, existential estrangement, social estrangement, empathic concern and perspective taking ability. The random sample of non-offenders scored significantly higher than the two forensic (HM Prison and Broadmoor) samples on the General Perceived Self-Efficacy and 'Existential estrangement' scales, indicative of higher self-reported agency and low estrangement. There were no differences between the samples on the measure of social estrangement. The non-offending volunteer sample scored significantly lower than the HM Prison and Broadmoor samples on the 'Empathic concern' scale, indicative of higher empathic ability among the forensic samples. There were no between-sample differences on the 'Perspective taking' scale. These results will be discussed further in section 6.7.

6.6. An assessment of agency and communion
This section will focus on the extent to which agency (as indexed by a measure of self-efficacy) and communion (as indexed by psychological estrangement and empathic ability) reflect the axes of the Interpersonal Circumplex.

6.6.1. Assessing the relationship between general perceived self-efficacy and interpersonal style
A series of standard multiple regressions were performed between scores on the General Perceived Self-Efficacy (GSE) scale as the dependent variable and all eight of the scales of the Inventory of Interpersonal Problems – Circumplex scales (IIP-C; 'Domineering/Controlling', 'Vindictive/Self-Centred', 'Cold/Distant', 'Socially Inhibited', 'Non-assertive', 'Overly Accommodating', 'Self-Sacrificing' and 'Intrusive/Needy') as independent variables.

6.6.1.1. General self-efficacy and interpersonal style – non-offending volunteer sample
Assumptions regarding normality and linearity were met and no outliers were identified (n=333).

Table 6.4 displays the correlations between variables, the unstandardised regression coefficients (B) and intercept, the standardised regression coefficients (β), the semipartial correlations (sr²) and R² and adjusted R². R for regression was significantly different from zero, F(8,324)=9.57, p<0.01. For the one regression coefficient that differed significantly from zero, 95% confidence limits were -.324 to -.102.
Table 6.4: Standard multiple regression of interpersonal variables on general self-efficacy among the non-offending volunteer sample

<table>
<thead>
<tr>
<th></th>
<th>GSE (DV)</th>
<th>PA</th>
<th>BC</th>
<th>DE</th>
<th>FG</th>
<th>HI</th>
<th>JK</th>
<th>LM</th>
<th>NO</th>
<th>B</th>
<th>β</th>
<th>sr² unique</th>
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<td>.009 .12</td>
</tr>
<tr>
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<td>.61</td>
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<td>-.006 .09</td>
</tr>
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</table>


SDs: 3.77 4.52 4.84 5.72 6.30 6.28 5.41 4.50 5.11

** significant at the 0.01 level
* unique variability =0.04; shared variability =0.15

GSE: General Self-Efficacy  PA: Domineering/Controlling  BC: Vindictive/Self-Centred
DE: Cold/Distant  FG: Socially Inhibited  HI: Non-assertive
JK: Overly Accommodating  LM: Self-Sacrificing  NO: Intrusive/Needy

The only independent variable to contribute significantly to prediction of general self-efficacy was 'Non-assertive' (sr²=.04). The eight independent variables in combination contributed another .15 in shared variability. Altogether, 19% (17% adjusted) of the variability in general self-efficacy was predicted by knowing scores on the eight interpersonal scales.

Although the correlation between general self-efficacy and 'Socially Inhibited' was -.35, 'Socially Inhibited' did not contribute significantly to regression. Post hoc evaluation of the correlation revealed that it was significantly different from zero, F (8, 324)=5.65, p<0.01. Apparently the relationship between general self-efficacy and 'Socially Inhibited' is mediated by the relationship between 'Non-assertive' and general self-efficacy.

6.6.1.2. General self-efficacy and interpersonal style – HM Prison sample

Two multivariate outliers were identified and excluded from analysis (n=117). Assumptions regarding normality and linearity were met.

Table 6.5 displays the correlations between variables, the unstandardised regression coefficients (B) and intercept, the standardised regression coefficients (β), the semi-partial correlations (sr²) and R² and adjusted R². R for regression was significantly
different from zero, $F(8, 108) = 2.48$, $p < 0.05$, although no regression coefficients differed significantly from zero.

Table 6.5: Standard multiple regression of interpersonal variables on general self-efficacy among the HM Prison sample

<table>
<thead>
<tr>
<th>GSE (DV)</th>
<th>PA</th>
<th>BC</th>
<th>DE</th>
<th>FG</th>
<th>HI</th>
<th>JK</th>
<th>LM</th>
<th>NO</th>
<th>B</th>
<th>$\beta$</th>
<th>$sr^2$ unique</th>
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<td>.57</td>
<td>.64</td>
<td>.18</td>
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Means 31.32  5.75  7.97  7.30  8.72  9.90  9.32  11.32  6.04  34.66
SDs   5.14  4.98  4.91  6.25  7.60  7.63  7.06  7.26  4.94

R² = .16
Adjusted R² = .09
R = .39

GSE: General Self-Efficacy
PA: Domineering/Controlling
BC: Vindictive/Self-Centred
DE: Cold/Distant
FG: Socially Inhibited
HI: Non-assertive
JK: Overly Accommodating
LM: Self-Sacrificing
NO: Intrusive/Needy

Altogether, 16% (9% adjusted) of the variability in general self-efficacy was predicted by knowing scores on the eight interpersonal scales.

Although the correlation between general self-efficacy and 'Cold/Distant' was -0.32, this scale did not contribute significantly to regression. Post hoc evaluation of the correlation revealed that it was not significantly different from zero, $F(8, 108) = 1.54$, $p = n/s$.

6.6.1.3. General self-efficacy and interpersonal style – Broadmoor sample

Assumptions regarding normality and linearity were met and no outliers were identified ($n = 56$). Results were interpreted cautiously, as the small sample size may have contributed to the over-fitting of the data.

Table 6.6 displays the correlations between variables, the unstandardised regression coefficients (B) and intercept, the standardised regression coefficients ($\beta$), the semi-partial correlations ($sr^2$) and $R^2$ and adjusted $R^2$. $R$ for regression was significantly different from zero, $F(8, 47) = 2.28$, $p < 0.05$. For the one regression coefficient that differed significantly from zero, 95% confidence limits were -1.165 to -.273.
Table 6.6: Standard multiple regression of interpersonal variables on general self-efficacy among the Broadmoor sample

<table>
<thead>
<tr>
<th>GSE (DV)</th>
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<th>FG</th>
<th>HI</th>
<th>JK</th>
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</table>

Intercept = 32.76

Means 29.80 5.96 7.68 8.34 9.82 10.52 9.54 10.02 7.59
SDs 6.57 5.48 6.04 7.18 7.63 6.94 6.59 7.22 5.81

R²= .28
Adjusted R²= .16
R= .53

** significant at the 0.01 level
* unique variability =0.16; shared variability =0.12

GSE: General Self-Efficacy  PA: Domineering/Controlling  BC: Vindictive/Self-Centred
DE: Cold/Distant  FG: Socially Inhibited  HI: Non-assertive
JK: Overly Accommodating  LM: Self-Sacrificing  NO: Intrusive/Needy

The only independent variable to contribute significantly to prediction of general self-efficacy was 'Non-assertive' (sr²=.16). The eight independent variables in combination contributed another .12 in shared variability. Altogether, 28% (16% adjusted) of the variability in general self-efficacy was predicted by knowing scores on the eight interpersonal scales.

Although the correlation between general self-efficacy and 'Socially Inhibited' was -.29, 'Socially Inhibited' did not contribute significantly to regression. Post hoc evaluation of the correlation revealed that it was not significantly different from zero, F (8, 47)=0.54, p=n/s.

6.6.1.4. Summary

A series of standard multiple regressions were performed to explore the extent to which agency, as indexed by General Perceived Self-Efficacy (GSE), reflects the 'Dominance-Submission' axis of the Interpersonal Circumplex. For both the non-offending volunteer and Broadmoor samples, the 'Non-assertive' scale predicted self-efficacy. For the non-offending sample, social inhibition was also correlated with self-efficacy, although the relationship was mediated by nonassertiveness. No other significant predictors of general self-efficacy were found. The pattern of correlations between the GSE and Inventory of Interpersonal Circumplex Scales across each of the three samples is described in Figure 6.13.
This highlights the degree of association of lack of self-efficacy to interpersonal space. These results will be discussed further in section 6.7.

### 6.6.2. Assessing the relationship between psychological estrangement and interpersonal style

A series of standard multiple regressions were performed between the 'Existential estrangement' and 'Social estrangement' scales of the Psychological Estrangement (PSE) questionnaire and the eight scales of the Inventory of Interpersonal Problems – Circumplex Scales (IIP-C). Analyses were first carried out with the non-offending volunteer sample, followed by the HM Prison sample. Exploratory analyses were also performed on the Broadmoor data, although results were not interpreted conclusively due to sample-size restrictions.
6.6.2.1. Existential estrangement and interpersonal style – non-offending volunteer sample

A standard multiple regression was performed between the 'Existential estrangement' scale of the PSE as the dependent variable and all eight IIP-C scales ('Domineering/Controlling', 'Vindictive/Self-Centred', 'Cold/Distant', 'Socially Inhibited', 'Non-assertive', 'Overly Accommodating', 'Self-Sacrificing' and 'Intrusive/Needy') as independent variables. Assumptions regarding normality and linearity were met and no outliers were identified (n=333).

Table 6.7 displays the correlations between variables, the unstandardised regression coefficients (B) and intercept, the standardised regression coefficients (β), the semi-partial correlations (sr²) and R² and adjusted R². R for regression was significantly different from zero, F(8,324)=28.11, p<0.01. Three regression coefficients differed significantly from zero. The 95% confidence limits for 'Domineering/Controlling' were .081 to .504, for 'Vindictive/Self-Centred' were -.664 to -.227, and confidence limits for 'Non-assertive' were -.636 to -.242.

Table 6.7: Standard multiple regression of interpersonal variables on existential estrangement among the non-offending volunteer sample

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<td>5.49</td>
<td>5.12</td>
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** significant at the 0.01 level
• unique variability =0.08; shared variability =0.33

EE: Existential Estrangement  PA: Domineering/Controlling  BC: Vindictive/Self-Centred
DE: Cold/Distant  FG: Socially Inhibited  HI: Non-assertive
JK: Overly Accommodating  LM: Self-Sacrificing  NO: Intrusive/Needy

Three independent variables contributed significantly to prediction of existential estrangement: 'Domineering/Controlling' (sr²=.01), 'Vindictive/Self-Centred' (sr²=.03) and 'Non-assertive' (sr²=.04). The eight independent variables in combination contributed another .33 in shared variability. Altogether, 41% (40% adjusted) of the
variability in existential estrangement was predicted by knowing the scores on the eight interpersonal scales.

Of the remaining five variables, four correlated with 'Existential estrangement' although did not contribute significantly to regression. Post hoc evaluation of the correlation between 'Existential estrangement' and 'Cold/Distant' revealed that it was significantly different from zero, $F(8, 324)=12.8$, $p<0.01$, as were the correlations between 'Existential estrangement' and 'Socially Inhibited' ($F(8, 324)=15.01$, $p<0.01$), 'Overly Accommodating' ($F(8, 324)=9.19$, $p<0.01$) and 'Self-Sacrificing' ($F(8, 324)=5.65$, $p<0.01$). Apparently, the relationship between 'Existential estrangement' and 'Cold/Distant', 'Socially Inhibited', 'Overly Accommodating' and 'Self-Sacrificing' are mediated by the relationship between 'Domineering/Controlling', 'Vindictive/Self-Centred', 'Non-assertive' and 'Existential estrangement'.

### 6.6.2.2. Existential estrangement and interpersonal style – HM Prison sample

A standard multiple regression was performed between the 'Existential estrangement' scale of the PSE as the dependent variable and all eight IIP-C scales ('Domineering/Controlling', 'Vindictive/Self-Centred', 'Cold/Distant', 'Socially Inhibited', 'Non-assertive', 'Overly Accommodating', 'Self-Sacrificing' and 'Intrusive/Needy') as independent variables. Two multivariate outliers were identified and excluded from analysis (n=118). Assumptions regarding normality and linearity were met.

Table 6.8 displays the correlations between variables, the unstandardised regression coefficients ($B$) and intercept, the standardised regression coefficients ($\beta$), the semipartial correlations ($sr^2$) and $R^2$ and adjusted $R^2$. $R$ for regression was significantly different from zero, $F(8,109)=14.16$, $p<0.01$. Three regression coefficients differed significantly from zero. The 95% confidence limits for 'Vindictive/Self-Centred' were -.897 to -.105, for 'Socially Inhibited' were -.819 to -.205 and confidence limits for 'Self-sacrificing' were -.647 to -.078.
Table 6.8: Standard multiple regression of interpersonal variables on existential estrangement among the HM Prison sample

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<th></th>
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Means 39.95 5.79 8.03 7.37 8.83 9.99 9.38 11.35 6.06
SDs 8.79 4.98 4.93 6.27 7.67 7.67 7.06 7.24 4.92

R² = .51
Adjusted R² = .47
R = .71

*significant at the 0.05 level; **significant at the 0.01 level
unique variability =0.11; shared variability =0.40

EE: Existential Estrangement  PA: Domineering/Controlling  BC: Vindictive/Self-Centred
DE: Cold/Distant  FG: Socially Inhibited  HI: Non-assertive
JK: Overly Accommodating  LM: Self-Sacrificing  NO: Intrusive/Needy

Three independent variables contributed significantly to prediction of existential estrangement: 'Vindictive/Self-Centred' (sr²=.03), 'Socially Inhibited' (sr²=.05) and 'Self-sacrificing' (sr²=.03). The eight independent variables in combination contributed another .4 in shared variability. Altogether, 51% (47% adjusted) of the variability in existential estrangement was predicted by knowing the scores on the eight interpersonal scales.

Of the remaining five variables, four correlated with 'Existential estrangement' although did not contribute significantly to regression. Post hoc evaluation of the correlation between 'Existential estrangement' and 'Non-assertive' revealed that it was significantly different from zero, F (8, 109)=6.23, p<0.01, as were the correlations between 'Existential estrangement' and 'Overly Accommodating' (F (8, 109)=5.32, p<0.01), 'Cold/Distant' (F (8, 109)=4.54, p<0.01) and 'Intrusive/Needy' (F (8, 109)=2.92, p<0.01). The correlation between 'Existential estrangement' and 'Domineering/Controlling' was not significantly different from zero (F (8, 109)=1.07, p=n/s). Apparently, the relationships between 'Existential estrangement' and 'Non-assertive', 'Overly Accommodating', 'Cold/Distant' and 'Intrusive/Needy' are mediated by the relationship between 'Vindictive/Self-Centred', 'Socially Inhibited', 'Self-sacrificing' and 'Existential estrangement'.
6.6.2.3. Existential estrangement and interpersonal style – Broadmoor sample

A standard multiple regression was performed between the 'Existential estrangement' scale of the PSE as the dependent variable and all eight IIP-C scales ('Domineering/Controlling', 'Vindictive/Self-Centred', 'Cold/Distant', 'Socially Inhibited', 'Non-assertive', 'Overly Accommodating', 'Self-Sacrificing' and 'Intrusive/Needy') as independent variables. Assumptions regarding normality and linearity were met and no outliers were identified (n=54). Results were interpreted cautiously, as the small sample size may have contributed to the over-fitting of the data.

Table 6.9 displays the correlations between variables, the unstandardised regression coefficients (B) and intercept, the standardised regression coefficients (β), the semipartial correlations (sr²) and R² and adjusted R². R for regression was significantly different from zero, F(8,45)=2.46, p<0.05. No regression coefficients differed significantly from zero.

Table 6.9: Standard multiple regression of interpersonal variables on existential estrangement among the Broadmoor sample

<table>
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<th>BC</th>
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<th>B</th>
<th>β</th>
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Intercept= 44.95

Means 39.41 5.93 7.65 8.30 9.74 10.44 9.20 9.80 7.31
SDs 7.79 5.57 6.15 7.23 7.72 7.03 6.45 7.13 5.73

R²=.30
Adjusted R²=.18
R= .55

EE: Existential Estrangement PA: Domineering/Controlling BC: Vindictive/Self-Centred
DE: Cold/Distant FG: Socially Inhibited HI: Non-assertive
JK: Overly Accommodating LM: Self-Sacrificing NO: Intrusive/Needy

Altogether, 30% (18% adjusted) of the variability in existential estrangement was predicted by knowing the scores on the eight interpersonal scales. None of the correlations between 'Existential estrangement' and interpersonal variables were significantly different from zero.
6.6.2.4. Social estrangement and interpersonal style – non-offending volunteer sample

A standard multiple regression was performed between the 'Social estrangement' scale of the PSE as the dependent variable and all eight IIP-C scales ('Domineering/Controlling', 'Vindictive/Self-Centred', 'Cold/Distant', 'Socially Inhibited', 'Non-assertive', 'Overly Accommodating', 'Self-Sacrificing' and 'Intrusive/Needy') as independent variables. Assumptions regarding normality and linearity were met and no outliers were identified (n=333).

Table 6.10 displays the correlations between variables, the unstandardised regression coefficients (B) and intercept, the standardised regression coefficients (β), the semi-partial correlations (sr²) and R² and adjusted R². R for regression was significantly different from zero, F(8,324)=31.37, p<0.01. Three regression coefficients differed significantly from zero. The 95% confidence limits for 'Vindictive/Self-Centred' were .191 to .45, for 'Socially Inhibited' were .153 to .363 and confidence limits for 'Self-sacrificing' were -.246 to -.019.

Table 6.10: Standard multiple regression of interpersonal variables on social estrangement among the non-offending volunteer sample

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<th>HI</th>
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<th>B</th>
<th>β</th>
<th>sr²</th>
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R²= .44
Adjusted R²= .42
R= .66

* significant at the 0.05 level; ** significant at the 0.01 level

SE: Social Estrangement  PA: Domineering/Controlling  BC: Vindictive/Self-Centred
DE: Cold/Distant  FG: Socially Inhibited  HI: Non-assertive
JK: Overly Accommodating  LM: Self-Sacrificing  NO: Intrusive/Needy

Three independent variables contributed significantly to prediction of social estrangement: 'Vindictive/Self-Centred' (sr²=.04), 'Socially Inhibited' (sr²=.04) and 'Self-sacrificing' (sr²=.01). The eight independent variables in combination contributed another .35 in shared variability. Altogether, 44% (42% adjusted) of the variability in
social estrangement was predicted by knowing the scores on the eight interpersonal scales.

Two other variables also correlated with 'Social estrangement', although did not contribute significantly to regression. Post hoc evaluation of the correlation between 'Social estrangement' and 'Cold/Distant' revealed that it was significantly different from zero, $F(8, 324)=15.01$, $p<0.01$, as was the correlation between 'Social estrangement' and 'Non-assertive', $F(8, 324)=3.72$, $p<0.01$. Apparently, the relationships between 'Social estrangement' and 'Cold/Distant', and 'Social estrangement' and 'Non-assertive' are mediated by the relationship between 'Vindictive/Self-Centred', 'Socially Inhibited', 'Self-sacrificing' and 'Social estrangement'.

6.6.2.5. Social estrangement and interpersonal style – HM Prison sample

A standard multiple regression was performed between the 'Social estrangement' scale of the PSE as the dependent variable and all eight IIP-C scales ('Domineering/Controlling', 'Vindictive/Self-Centred', 'Cold/Distant', 'Socially Inhibited', 'Non-assertive', 'Overly Accommodating', 'Self-Sacrificing' and 'Intrusive/Needy') as independent variables. Two multivariate outliers were identified and excluded from analysis (n=118). Assumptions regarding normality and linearity were met.

Table 6.11 displays the correlations between variables, the unstandardised regression coefficients (B) and intercept, the standardised regression coefficients ($\beta$), the semi-partial correlations ($sr^2$) and $R^2$ and adjusted $R^2$. $R$ for regression was significantly different from zero, $F(8, 109)=10.96$, $p<0.01$. Two regression coefficients differed significantly from zero. The 95% confidence limits for 'Vindictive/Self-Centred' were .000 to .546, and for 'Socially Inhibited' were .241 to .664.
Table 6.11: Standard multiple regression of interpersonal variables on social estrangement among the HM Prison sample

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<th>β</th>
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<td></td>
<td>Intercept=17.19</td>
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SDs: 5.69 4.98 4.93 6.27 7.67 7.67 7.06 7.24 4.92

R² = .45
Adjusted R² = .41
R = .67

* significant at the 0.05 level; ** significant at the 0.01 level

SE: Social Estrangement; PA: Domineering/Controlling; BC: Vindictive/Self-Centred; DE: Cold/Distant; FG: Socially Inhibited; HI: Non-assertive; JK: Overly Accommodating; LM: Self-Sacrificing; NO: Intrusive/Needy

Two independent variables contributed significantly to prediction of social estrangement, 'Vindictive/Self-Centred' (sr²=.02) and 'Socially Inhibited' (sr²=.09). The eight independent variables in combination contributed another .34 in shared variability. Altogether, 45% (41% adjusted) of the variability in social estrangement was predicted by knowing the scores on the eight interpersonal scales.

Two other variables also correlated with 'Social estrangement', although did not contribute significantly to regression. Post hoc evaluation of the correlation between 'Social estrangement' and 'Cold/Distant' revealed that it was significantly different from zero, F (8, 109)=6.56, p<0.01, as was the correlation between 'Social estrangement' and 'Non-assertive', F (8, 109)=2.3, p<0.05. Apparently, the relationship between 'Social estrangement' and 'Cold/Distant', and 'Social estrangement' and 'Non-assertive' are mediated by the relationship between 'Vindictive/Self-Centred', 'Socially Inhibited' and 'Social estrangement'.

6.6.2.6. Social estrangement and interpersonal style – Broadmoor sample

A standard multiple regression was performed between the 'Social estrangement' scale of the PSE as the dependent variable and all eight IIP-C scales ('Domineering/Controlling', 'Vindictive/Self-Centred', 'Cold/Distant', 'Socially Inhibited', 'Non-assertive', 'Overly Accommodating', 'Self-Sacrificing' and 'Intrusive/Needy') as independent variables. Assumptions regarding normality and...
linearity were met and no outliers were identified \((n=54)\). Results were interpreted cautiously, as the small sample size may have contributed to the over-fitting of the data.

Table 6.12 displays the correlations between variables, the unstandardised regression coefficients \((B)\) and intercept, the standardised regression coefficients \((\beta)\), the semi-partial correlations \((\text{sr}^2)\) and \(R^2\) and adjusted \(R^2\). \(R\) for regression was significantly different from zero, \(F(8,45)=5.07, p<0.01\). Three regression coefficients differed significantly from zero. The 95\% confidence limits for 'Vindictive/Self-Centred' were \(.159\) to \(.989\), for 'Non-assertive' were \(.052\) to \(.809\) and confidence limits for 'Intrusive/Needy' were \(-1.11\) to \(-.189\).

Three independent variables contributed significantly to prediction of social estrangement: 'Vindictive/Self-Centred' \((\text{sr}^2=.09)\), 'Non-assertive' \((\text{sr}^2=.06)\) and 'Intrusive/Needy' \((\text{sr}^2=.09)\). The eight independent variables in combination contributed another .23 in shared variability. Altogether, 47\% (38\% adjusted) of the variability in social estrangement was predicted by knowing the scores on the eight interpersonal scales. None of the remaining correlations between 'Social estrangement' and interpersonal variables (which did not contribute to the regression) were significantly different from zero.
6.6.2.7. Summary

A series of standard multiple regressions were performed to explore the extent to which (lack of) communion with others, as indexed by the 'Existential estrangement' and 'Social estrangement' scales of the Psychological Estrangement questionnaire reflect the 'Coldness-Friendliness' axis of the Interpersonal Circumplex. Among the non-offending volunteer sample, 'Existential estrangement' was significantly predicted by scores on scales reflecting the 'Dominance-Submission' axis of the Interpersonal Circumplex. Most of the other scales of the Inventory of Interpersonal Problems-Circumplex Scales (IIP-C) correlated with 'Existential estrangement', although these relationships were mediated by those between the predictor variables and estrangement. The 'Social estrangement' scale was significantly predicted by IIP-C scales reflecting the 'Coldness-Friendliness' axis of the circumplex, and also correlated with 'Cold/Distant' and 'Non-assertive'.

Among the HM prison sample, 'Existential estrangement' was significantly predicted by scores on scales reflecting the 'Coldness-Friendliness' axis. This scale also correlated with all but one of the remaining scales of the IIP-C. The 'Vindictive/Self-centred' and 'Socially Inhibited' scales (reflecting some level of 'coldness') significantly predicted social estrangement, which was also correlated with the 'Cold/Distant' and 'Non-assertive' scales.

There were no significant predictors of existential estrangement among the Broadmoor sample. A similar pattern to the non-offending volunteer and HM Prison samples was evidenced in relation to prediction of social estrangement. The 'Vindictive/Self-centred', 'Non-assertive' and 'Intrusive/Needy' scales were significant predictors of social estrangement. These results will be discussed further in section 6.7.

6.6.3. Assessing the relationship between empathic ability and interpersonal style

A series of standard multiple regressions were performed between the 'Perspective taking' and 'Empathic concern' scales of the Interpersonal Reactivity Index (IRI) questionnaire and the eight scales of the Inventory of Interpersonal Problems - Circumplex Scales (IIP-C). Analyses were first carried out with the non-offending volunteer sample, followed by the HM Prison sample. Exploratory analyses were also
performed on the Broadmoor data, although results were not interpreted conclusively due to sample-size restrictions.

### 6.6.3.1. Perspective taking and interpersonal style – non-offending volunteer sample

A standard multiple regression was performed between the 'Perspective taking' scale of the IRI as the dependent variable and all eight IIP-C scales ('Domineering/Controlling', 'Vindictive/Self-Centred', 'Cold/Distant', 'Socially Inhibited', 'Non-assertive', 'Overly Accommodating', 'Self-Sacrificing' and 'Intrusive/Needy') as independent variables. Assumptions regarding normality and linearity were met and no outliers were identified (n=334).

Table 6.13 displays the correlations between variables, the unstandardised regression coefficients (B) and intercept, the standardised regression coefficients (β), the semi-partial correlations (sr²) and R² and adjusted R². R for regression was significantly different from zero, F(8,325)=7.2, p<0.01. Three regression coefficients differed significantly from zero. The 95% confidence limits for 'Domineering/Controlling' were -0.405 to -0.086, for 'Socially Inhibited' were -0.319 to -0.051 and confidence limits for 'Self-Sacrificing' were 0.026 to 0.315.

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<td>.42</td>
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<td>- .034</td>
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<td>Intercept</td>
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</tbody>
</table>

| SDs      | 4.90  | 4.53 | 4.83 | 5.71 | 6.31 | 6.30 | 5.41 | 5.50  | 5.14 |

R² = .15
Adjusted R² = .13
R = .39

* significant at the 0.05 level; ** significant at the 0.01 level

PT: Perspective Taking  PA: Domineering/Controlling  BC: Vindictive/Self-Centred
DE: Cold/Distant        FG: Socially Inhibited       HI: Non-assertive
JK: Overly Accommodating LM: Self-Sacrificing       NO: Intrusive/Needy
Three independent variables contributed significantly to prediction of perspective taking, 'Domineering/Controlling' ($r^2 = .03$), 'Socially Inhibited' ($r^2 = .02$) and 'Self-sacrificing' ($r^2 = .02$). The eight independent variables in combination contributed another .08 in shared variability. Altogether, 15% (13% adjusted) of the variability in perspective taking was predicted by knowing the scores on the eight interpersonal scales.

One other variable also correlated with 'Perspective taking', although did not contribute significantly to regression. Post hoc evaluation of the correlation between 'Perspective taking' and 'Vindictive/Self-centred' revealed that it was significantly different from zero, $F(8, 325) = 3.46, p<0.01$. Apparently, the relationship between 'Perspective taking' and 'Vindictive/Self-centred' is mediated by the relationship between 'Domineering/Controlling', 'Socially Inhibited', 'Self-sacrificing' and 'Social estrangement'. Although the correlation between 'Perspective taking' and 'Cold/Distant' was -.21, 'Cold/Distant' did not contribute significantly to regression. Post hoc evaluation of the correlation revealed that it was not significantly different from zero, $F(8, 325) = 1.89, p=n/s$.

### 6.6.3.2. Perspective taking and interpersonal style – HM Prison sample

A standard multiple regression was performed between the 'Perspective taking' scale of the IRI as the dependent variable and all eight IIP-C scales ('Domineering/Controlling', 'Vindictive/Self-Centred', 'Cold/Distant', 'Socially Inhibited', 'Non-assertive', 'Overly Accommodating', 'Self-Sacrificing' and 'Intrusive/Needy') as independent variables. Two multivariate outliers were identified and excluded from analysis (n=118). Assumptions regarding normality and linearity were met and no outliers were identified.

Table 6.14 displays the correlations between variables, the unstandardised regression coefficients ($B$) and intercept, the standardised regression coefficients ($\beta$), the semi-partial correlations ($sr^2$) and $R^2$ and adjusted $R^2$. $R$ for regression was significantly different from zero, $F(8,109) = 5.21, p<0.01$. No regression coefficients differed significantly from zero.
Table 6.14: Standard multiple regression of interpersonal variables on perspective taking among the HM Prison sample

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<thead>
<tr>
<th></th>
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<th>BC</th>
<th>DE</th>
<th>FG</th>
<th>HI</th>
<th>JK</th>
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<th>B</th>
<th>β</th>
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<td></td>
<td></td>
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</table>

PT: Perspective Taking
PA: Domineering/Controlling
BC: Vindictive/Self-Centred
DE: Cold/Distant
FG: Socially Inhibited
HI: Non-assertive
JK: Overly Accommodating
LM: Self-Sacrificing
NO: Intrusive/Needy

Altogether, 28% (22% adjusted) of the variability in perspective taking was predicted by knowing the scores on the eight interpersonal scales. None of the correlations between 'Perspective taking' and interpersonal variables were significantly different from zero.

One other variable also correlated with 'Perspective taking', although did not contribute significantly to regression. Post hoc evaluation of the correlation between 'Perspective taking' and 'Vindictive/Self-centred' revealed that it was significantly different from zero, F (8, 109)=3.07, p<0.05. Although the correlation between 'Perspective taking' and 'Domineering/Controlling' was -.39, 'Domineering/Controlling' did not contribute significantly to regression. Post hoc evaluation of the correlation revealed that it was not significantly different from zero, F (8, 109)=2.50, p=n/s.

6.6.3.3. Perspective taking and interpersonal style – Broadmoor sample

A standard multiple regression was performed between the 'Perspective taking' scale of the IRI as the dependent variable and all eight IIP-C scales ('Domineering/Controlling', 'Vindictive/Self-Centred', 'Cold/Distant', 'Socially Inhibited', 'Non-assertive', 'Overly Accommodating', 'Self-Sacrificing' and 'Intrusive/Needy') as independent variables. Assumptions regarding normality and linearity were met and no outliers were identified (n=55). Results were interpreted cautiously, as the small sample size may have contributed to the over-fitting of the data.
Table 6.15 displays the correlations between variables, the unstandardised regression coefficients (B) and intercept, the standardised regression coefficients (β), the semi-partial correlations (sr²) and R² and adjusted R². R for regression was significantly different from zero, \( F(8,46)=2.96, \ p<0.01 \). No regression coefficients differed significantly from zero.

Table 6.15: Standard multiple regression of interpersonal variables on perspective taking among the Broadmoor sample

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<thead>
<tr>
<th>PT (DV)</th>
<th>PA</th>
<th>BC</th>
<th>DE</th>
<th>FG</th>
<th>HI</th>
<th>JK</th>
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<th>β</th>
<th>sr² unique</th>
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PT: Perspective Taking  PA: Domineering/Controlling  BC: Vindictive/Self-Centred
DE: Cold/Distant   FG: Socially Inhibited  HI: Non-assertive
JK: Overly Accommodating  LM: Self-Sacrificing  NO: Intrusive/Needy

Altogether, 34% (22% adjusted) of the variability in perspective taking was predicted by knowing the scores on the eight interpersonal scales. None of the correlations between ‘Perspective taking’ and interpersonal variables were significantly different from zero.

Although the correlation between ‘Perspective taking’ and ‘Socially Inhibited’ was -.44, ‘Socially Inhibited’ did not contribute significantly to regression. Post hoc evaluation of the correlation revealed that it was not significantly different from zero, \( F(8,46)=1.40, \ p=n/s \).

6.6.3.4. Empathic concern and interpersonal style – non-offending volunteer sample

A standard multiple regression was performed between the ‘Empathic concern’ scale of the IRI as the dependent variable and all eight IIP-C scales (‘Domineering/Controlling’, ‘Vindictive/Self-Centred’, ‘Cold/Distant’, ‘Socially Inhibited’, ‘Non-assertive’, ‘Overly Accommodating’, ‘Self-Sacrificing’ and
'Intrusive/Needy') as independent variables. Assumptions regarding normality and linearity were met and no outliers were identified (n=334).

Table 6.16 displays the correlations between variables, the unstandardised regression coefficients (B) and intercept, the standardised regression coefficients (β), the semi-partial correlations (sr²) and R² and adjusted R². R for regression was significantly different from zero, F(8,325)=9.47, p<0.01. Three regression coefficients differed significantly from zero. The 95% confidence limits for 'Vindictive/Self-Centred' were -.344 to -.109, for 'Non-assertive' were .022 to .233 and confidence limits for 'Self-Sacrificing' were .109 to .314.

<table>
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<th></th>
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<th>PA</th>
<th>BC</th>
<th>DE</th>
<th>FG</th>
<th>HI</th>
<th>JK</th>
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|   | unique variability = 0.11; shared variability = 0.08 |


Three independent variables contributed significantly to prediction of empathic concern, 'Vindictive/Self-Centred' (sr²=.04), 'Non-assertive' (sr²=.02) and 'Self-sacrificing' (sr²=.05). The eight independent variables in combination contributed another .08 in shared variability. Altogether, 19% (17% adjusted) of the variability in empathic concern was predicted by knowing the scores on the eight interpersonal scales.

Although the correlation between 'Empathic concern' and 'Cold/Distant' was -.19, 'Cold/Distant' did not contribute significantly to regression. Post hoc evaluation of the
correlation revealed that it was not significantly different from zero, $F(8, 325)=1.44$, $p=n/s$.

### 6.6.3.5. Empathic concern and interpersonal style – HM Prison sample

A standard multiple regression was performed between the 'Empathic concern' scale of the IRI as the dependent variable and all eight IIP-C scales ('Domineering/Controlling', 'Vindictive/Self-Centred', 'Cold/Distant', 'Socially Inhibited', 'Non-assertive', 'Overly Accommodating', 'Self-Sacrificing' and 'Intrusive/Needy') as independent variables. Two multivariate outliers were identified and excluded from analysis ($n=118$). Assumptions regarding normality and linearity were met and no outliers were identified.

Table 6.17 displays the correlations between variables, the unstandardised regression coefficients ($B$) and intercept, the standardised regression coefficients ($\beta$), the semi-partial correlations ($sr^2$) and $R^2$ and adjusted $R^2$. $R$ for regression was significantly different from zero, $F(8,109)=4.77$, $p<0.01$. One regression coefficient differed significantly from zero. The 95% confidence limits for 'Self-sacrificing' were .150 to .439.

![Table 6.17: Standard multiple regression of interpersonal variables on empathic concern among the HM Prison sample](image)

Altogether, 26% (21% adjusted) of the variability in empathic concern was predicted by knowing the scores on the eight interpersonal scales. None of the correlations
between 'Empathic concern' and interpersonal variables were significantly different from zero.

One other variable also correlated with 'Empathic concern', although did not contribute significantly to regression. Post hoc evaluation of the correlation between 'Empathic concern' and 'Self-sacrificing' revealed that it was significantly different from zero, F (8, 109)=3.06, p<0.05. Although the correlation between 'Empathic concern' and 'Overly Accommodating' was .26, 'Overly accommodating' did not contribute significantly to regression. Post hoc evaluation of the correlation revealed that it was not significantly different from zero, F (8, 109)=0.96, p=n/s.

6.6.3.6. Empathic concern and interpersonal style – Broadmoor sample

A standard multiple regression was performed between the 'Empathic concern' scale of the IRI as the dependent variable and all eight IIP-C scales ('Domineering/Controlling', 'Vindictive/Self-Centred', 'Cold/Distant', 'Socially Inhibited', 'Non-assertive', 'Overly Accommodating', 'Self-Sacrificing' and 'Intrusive/Needy') as independent variables. Assumptions regarding normality and linearity were met and no outliers were identified (n=55). Results were interpreted cautiously, as the small sample size may have contributed to the over-fitting of the data.

Table 6.18 displays the correlations between variables, the unstandardised regression coefficients (B) and intercept, the standardised regression coefficients (β), the semi-partial correlations (sr²) and R² and adjusted R². R for regression was significantly different from zero, F(8,46)=2.43, p<0.05. No regression coefficients differed significantly from zero.
 Altogether, 30% (17% adjusted) of the variability in empathic concern was predicted by knowing the scores on the eight interpersonal scales. None of the correlations between 'Empathic concern' and interpersonal variables were significantly different from zero.

Although the correlation between 'Empathic concern' and 'Intrusive/Needy' was .26, 'Intrusive/Needy' did not contribute significantly to regression. Post hoc evaluation of the correlation revealed that it was not significantly different from zero, $F_{(8, 48)}=0.40, p=n/s$.

### Summary

A series of standard multiple regressions were performed to explore the extent to which (lack of) communion with others, as indexed by the 'Perspective taking' and 'Empathic concern' scales of the Interpersonal Reactivity Index reflect the 'Coldness-Friendliness' axis of the Interpersonal Circumplex. Among the non-offending volunteer sample, 'Perspective taking' was significantly predicted by three scales spaced around the circumplex. Perspective taking ability was also correlated with the 'Vindictive/Self-Centred' scale, but the relationship was mediated by 'Domineering/Controlling', 'Socially Inhibited' and 'Self-sacrificing'. A similar pattern was evidenced for the prediction of 'Empathic concern', although there were no additional correlations.
Empathic ability was not significantly predicted by any of the Inventory of Interpersonal Problems-Circumplex Scales (IIP-C) among the HM Prison sample. The ‘Vindictive/Self-Centred’ and ‘Self-Sacrificing’ scales mediated the relationships between all of the variables and the ‘Perspective taking’ and ‘Empathic concern’ scales, respectively.

Empathic ability was not significantly predicted by any of the IIP-C scales among the Broadmoor sample. These results will be discussed further in section 6.7.

6.7. Discussion

The present chapter aimed to generate an interpersonal circumplex structure within which subsequent thesis aims could be addressed. In addition, this chapter aimed to 1) examine the differences in interpersonal style between the three non-offending volunteer, HM Prison and Broadmoor samples, and 2) explore the extent to which interpersonal style is related to measures of agency and communion. The results of the analyses presented in this chapter are discussed in the following sections, with reference to these specific aims.

6.7.1. Interpersonal circumplex structure

All statistical tests revealed that the structures generated across the three non-offending volunteer, HM Prison and Broadmoor samples did indeed represent circumplexity. Visually, this was most evident among the non-offending volunteer sample. However, some level of distortion was also clear within each of the interpersonal circumplex spaces, specifically in relation to a lack of complete orthogonality between the ‘Domineering/Controlling – Non-assertive’ and ‘Cold/Distant – Self-sacrificing’ axes. Among the non-offending volunteer sample, the ‘Overly Accommodating’ scale was located closest to ‘Non-assertive’, which may have distorted the space such that ‘Self-sacrificing’ was also shifted from its true theoretical position. Furthermore, ‘Vindictive/Self-centred’ was also close to both ‘Domineering/Controlling’ and ‘Cold/Distant’. The strength of these associations is likely to have shifted the ‘Socially Inhibited’ scale closer to the ‘Cold/Distant’ scale, and away from its theoretical position. Within the HM Prison sample interpersonal space, the ‘Domineering/Controlling’ and ‘Vindictive/Self-centred’ scales were also strongly associated with each other. Other interpersonal scales were more equally spaced around the circumplex. As expected, due to the small sample size, the circumplex structure was weakest among the Broadmoor sample.
One reason for the differences in strength in circumplex structure across these three samples is, of course, the differing sample sizes. Wiggins, Trapnell and Philips (1988) stated that a sample size of 175 provides sufficient power for the Interpersonal Circumplex to be generated. Whilst the HM Prison and Broadmoor samples were short of this recommendation, the extent to which these findings may also be dependent upon sample characteristics is unclear, particularly as the sample sizes differed across populations. However, there would appear to be slight spatial separation of the 'Domineering/Controlling', 'Vindictive-Self-centred' and 'Cold/Distant' variables from those remaining in the HM Prison sample interpersonal space. One explanation for this might be the strength of these interpersonal characteristics among this sample of offenders, indicative of characteristic interpersonal style of this sample of offenders. Similarly, there is apparent separation of the three 'Domineering – Cold' scales and 'Socially Inhibited' from the remaining four interpersonal variables in the Broadmoor sample interpersonal space. Again, this might be indicative of a higher frequency of self-reported problems on these scales among this sample.

Future research which aims to generate a theoretically useful, as well as statistically sound, circumplex structure should take heed of sample size restrictions. A second reason for the differences found here may be related to differences in British and North American response style to the Inventory of Interpersonal Problems-Circumplex Scales (IIP-C). The reliability coefficients (presented in section 5.4.1. of chapter 5) were comparable to those of the published values (Horowitz et al., 2000), indicative of common variance and homogeneity among scale items among the present sample. However, the relationships between each of the scales may vary across cultures. This would help to explain the lack of orthogonality of axes.

Despite the slight imprecision of circumplex structure, those presented in this chapter across each of the three samples are good, and are certainly comparable with those presented elsewhere (e.g. Horowitz et al., 2000). The non-offending volunteer sample circumplex structure appears to be sufficiently robust in order to provide a basis from which further analyses can take place.
6.7.2. Differences in interpersonal style between the non-offending volunteer, HM Prison and Broadmoor samples

Previous research (Anderson, 2002; Blackburn, 1998a) identified violent behaviour as being associated with the 'Domineering/Controlling' – 'Cold/Distant' quadrant of the Interpersonal Circumplex. The findings of the present results would appear to support this work, although will be explored further in Chapter 7. Of interest in the findings of the present research is the identification of the HM Prison and Broadmoor samples as differing from each other in terms of interpersonal style. This is suggestive of differences in interpersonal styles between offending populations.

Among a sample of mentally disordered offenders, Blackburn (1998a) suggested that the offences of high-rate offenders were likely to include frequent coercive actions, as indicated by an association with the 'Vindictive/Self-centred' scale. This would suggest that the present sample of HM prisoners have extensive criminal histories. Furthermore, among a sample of Canadian prisoners, Anderson (2002) labelled the group of violent offenders as 'cold-hearted', characterised by denying warmth, kindness or sympathy to others and having difficulty expressing affection to and getting along with others. This would suggest that the present sample of Broadmoor patients reflect the characteristics of other homogeneous groups of violent offenders.

This is consistent with both previous research and the literature reviewed in Chapter 3 on the determinants of aggressive and violent behaviour. Specifically, this finding is relevant to the social interactionist perspective of violence as coercive power (section 3.1.6. of Chapter 3), which gives agency to the actor in the election of coercive social influence. Tedeschi and Felson (1994) emphasise the instrumental function and motivation of coercive actions, which are achieved through the use of compliance or harm in the form of intended threats, punishment, or bodily force. Both of the forensic samples in the present research deviated from the non-offending sample towards a higher score on the 'Vindictive/Self-centred' scale. This suggests that these two samples of offenders are characterised to some degree by compliance-gaining or intentional harm-doing. Therefore, it would appear that the motivation and function for interpersonally violent behaviour among some offenders is partly associated with an interpersonal style characteristic of a lack of regard for the safety and rights of others and a hostile attributional bias.
Both of the forensic samples deviated from the non-offending volunteer sample on the 'Cold/Distant' scale, with the Broadmoor sample having more of a tendency to score high on this scale than the HM Prison sample. This indicates that the two samples of offenders have poor attachment to others and are emotionally withdrawn. This is interesting, as the description of the 'Cold/Distant' style has some similarities with the psychopathology of mental disorder, specifically social withdrawal characteristic of acute episodes of schizophrenia. Furthermore, developmental research related to childhood abuse and peer rejection (section 3.1.7. of Chapter 3) implicated difficulties in forming attachments with and expressing affections towards others in the aetiology of violent behaviour. This may be indicative of a greater degree of childhood abuse and deprivation among this sample of Broadmoor patients than offenders in the Prison Service. An additional factor which may increase our understanding of the higher frequency of self-reported interpersonal problems among the Broadmoor sample on the 'Cold/Distant' and 'Socially Inhibited' scales, is stigmatisation associated with the experience of mental illness or disorder. In particular, the cognitive difficulties associated with mental illness could exacerbate difficulties with interpersonal interactions. This hypothesis could be partially supported by the higher relative frequency of self-reported problems on the 'Socially Inhibited' scale, which would suggest that mentally disordered offenders also use violent behaviour in response to difficulties communicating their thoughts, feelings and wishes to others. Similar conclusions have also been drawn with other expressions of aggression, specifically the use of setting fires as communicating messages to others (Geller, 1992).

Previous research (Blackburn, 1998a) would suggest that the relative differences between the two forensic samples might be due to extent of general criminality and violent offending specialisation. However, the findings from the present research would suggest that there are a variety of motivations and functions for violent behaviour, and that those of mentally disordered and non-mentally disordered violent offenders may differ. This has important implications both for our understanding of violent behaviour and treatment targets across populations of violent offenders.
6.7.3. Interpersonal style as related to measures of agency and communion

Three measures, based on theoretical indicators in the violence literature, were adopted to reflect agency and communion. The results of each of these will be discussed in turn.

6.7.3.1. Self-efficacy

The non-offending volunteers reported a significantly higher sense of personal control than the two forensic samples, indicating that, in general, they feel more able to cope with difficulties and are able to achieve their targets in life. Of course, this may be an artefact of the nature of the environmental constraints on the samples, as people within secure institutions may not feel that they have much control over their life. The relatively low score achieved here by the Broadmoor sample may be related to a perception of an external locus of control, a common feature among individuals with mental disorder.

Among the non-offending volunteer and Broadmoor samples, an increasing score on the ‘Non-assertive’ scale was associated with a correspondingly low score on the GSE. This indicates that the non-offending volunteers and Broadmoor patients who reported a lack of self-confidence and self-esteem and who typically avoid exercising power or control over others also do not have a sense of personal control more generally. An increasingly high score on the General Perceived Self-Efficacy scale (GSE; Schwarzer and Jerusalem, 1995) is also reflective of an increasingly low score on the ‘Non-assertive’ scale. Although interpretations of data among small samples should be treated with caution, this finding among the Broadmoor sample complements that of the non-offending volunteer sample. The significant differences between the two samples on GSE scale score do not appear to have influenced the outcome of the findings of these regression analyses. However, these results can not be generalised to the HM Prison sample. The pattern of correlations between the scales of the IIP-C and the GSE for the HM Prison sample differed from those of the non-offending and Broadmoor samples, indicating that the location of (poor) self-efficacy within interpersonal space is not consistent across samples.

Although not a significant predictor of low general perceived self-efficacy, a high score on the ‘Socially Inhibited’ scale was also associated with this construct among the non-offending volunteer sample. Whilst unexpected, this is not altogether
surprising, given that an increasingly high score on this scale of the IIP-C is indicative of self-reported problems regarding avoidance of conflict with others and personal social risks, as well as the adoption of avoidant coping strategies more generally. Furthermore, consistent with the theoretical construct of the Interpersonal Circumplex, one would also expect scales adjacent to ‘Non-assertive’ to be correlated with GSE, although to a lesser extent.

Among both the Broadmoor and HM Prison samples, the correlations between the GSE and scales of the IIP-C were strongest on the left-hand side of the circumplex. This may be indicative of a higher level of reported interpersonal problems associated with a perception of alienation from others. This, in turn, may indicate that these samples perceive a sense of personal control through what may traditionally be termed ‘maladaptive’ coping strategies, such as avoidance and the use of threats in the manipulation of others. Among the Broadmoor sample there was a strong (but non-significant) correlation between the GSE and ‘Socially Inhibited’, which may be explained in terms of more self-reported problems relating to an avoidant coping style.

Given the strength of the association between the ‘Non-assertive’ scale and the GSE, the lack of any significant (positive) association here between the geographically-opposed ‘Domineering/Controlling’ scale and the GSE is initially surprising. Theoretically, a high score on the ‘Non-assertive’ scale co-occurs with a low score on the ‘Domineering/Controlling’ scale. This pattern is evident in relation to the GSE also, with the relationship between the GSE and the IIP-C being most pronounced in relation to the ‘Non-assertive’ and ‘Domineering/Controlling’ scales. However, interpersonal theory would also dictate that a low score on the ‘Non-assertive’ scale would be indicative of a high score on the ‘Domineering/Controlling’ scale. In relation to the present findings, a low ‘Non-assertive’ score is associated with a high GSE score, although this would also predict reciprocally high ‘Domineering/Controlling’ and GSE scores. However, among these samples there is no relationship between one’s perceived level of personal control and one’s need to control others. This could be explained in terms of self-efficacy being more related to a more central position on this ‘Domineering/Controlling’ – ‘Non-assertive’ dimension, which might reflect ‘assertiveness’, rather than the extreme positions of a domineering or non-assertive interpersonal style. As such, high general self-efficacy would be theoretically
associated with a lack of non-assertiveness. This is evident in the pattern of
correlations among the non-offending volunteer and Broadmoor samples.

The two principal theoretical considerations of this finding are: 1) that the GSE does
not reflect both positive and negative personal agency, and 2) that, as a result of this,
the interpersonal ‘Dominance-Submission’ axis must measure more than simply
personal agency. It could be that individuals reporting interpersonal styles at both
extremes of this dimension could have adopted these styles in response to having
low general self-efficacy, as opposed to the previous assumption that those with a
domineering interpersonal style would have high self-efficacy and those at the other
end of the dimension would have low self-efficacy. Nonetheless, the GSE does
appear to reflect agency, to some extent, in relation to the Interpersonal Circumplex.
However, this is restricted to a lack of agency, associated with a high ‘Non-assertive’
score, and a low score on this scale reflecting increasing personal agency. This
association is clear among the non-offending volunteer and Broadmoor samples only.

6.7.3.2. Psychological estrangement
The relationship between psychological estrangement, agency, and communion will
be discussed with reference to each of existential and social estrangement in turn.

6.7.3.2.1. Existential estrangement
The Broadmoor and HM Prison samples reported a significantly higher level of
existential estrangement than the non-offending volunteers, indicating that the
offenders were more psychologically distant from themselves and more confused
about the state of the world around them. Although it was not clear whether
existential estrangement was characteristic of those two groups of offenders more
generally or if it was specific to their environmental situations, the results of the
present analysis would lend support to the latter. The non-offenders who reported
higher levels of dominance and personal control were also likely to experience a
significantly lower level of existential estrangement than those who reported
difficulties with self-confidence in challenging the world around them. This would
suggest that existential estrangement is linked to the extent to which an individual
perceives that they have the resources and skills available to make sense of the
world around them, a task made all the more difficult within a restrictive environment.
It was anticipated that a low score on the 'Existential estrangement' scale (a high level of estrangement) would be predicted by a high score on the 'Cold/Distant' scale and a low score on the 'Self-sacrificing' scale. This is not the case among the non-offending volunteer sample. Somewhat unexpectedly, high scores on the 'Non-assertive' and 'Vindictive/Self-Centred' scales and a low score on the 'Domineering/Controlling' scale were the strongest predictors of a high score on the 'Existential estrangement' scale. This would suggest here that existential estrangement has more to do with the extent to which an individual perceives that they are able to control the world around them, rather than their perception of alienation from others.

The Inventory of Interpersonal Problems-Circumplex Scales (IIP-C; Horowitz et al., 2000) predictors of 'Existential estrangement' among the HM Prison sample differ from those of the non-offending volunteers. For this group of offenders, high levels of social inhibition and vindictiveness were the strongest predictors of high levels of existential estrangement, followed by a high score on the 'Self-sacrificing' scale. 'Existential estrangement' was also predicted by the 'Vindictive/Self-Centred' scale among the non-offending volunteer sample, and it may be that the hostile attribution bias and suspiciousness typical of a high score on this scale make it more difficult for these individuals to make sense of the world around them. This is juxtaposed by the prediction of 'Existential estrangement' by 'Socially Inhibited' among this sample of prisoners, which would suggest that the avoidant coping style characteristic of a high score on this scale fosters a lack of resolution of existential crises, so perpetuating the experience of existential estrangement.

Interestingly, the 'Vindictive/Self-Centred' and 'Socially Inhibited' predictor scales fall either side of the hypothesised location of 'Existential estrangement', although a high score on 'Cold/Distant' is correlated with but not predictive of a high level of estrangement. People who score high on the 'Cold/Distant' scale may enjoy freedom from social obligations and social demands and, as such, may have little interest in making sense of the world around them. A further hypothesis was that a high score on the 'Self-sacrificing' scale (the geographical opposite to 'Cold/Distant') would be predictive of a low level of existential estrangement, although this is not true of this sample of offenders. In this case, excessive affiliation or communion with others is predictive of a high level of existential estrangement. This could be explained through the characteristic over-empathising of high scorers on the 'Self-sacrificing' scale,
which would mean that these individuals would also be overly concerned about and try to make sense of the worlds of others, in addition to their own.

The strong correlations between 'Existential estrangement' and other scales of the IIP-C would suggest that the concept of estrangement can not be easily located within interpersonal space. It may be that the Interpersonal Circumplex may simply be unable to account for the full range of personality facets required to explain existential estrangement. Another reason for this might be that existential estrangement is not a series of cognitions about the world but, rather, a perceptual experience specific to the internal world of an individual. Therefore, existential estrangement could be viewed more as a 'personal', as opposed to an 'interpersonal' phenomenon. This could account for both the variation in association with this scale and those of the IIP-C, as well as the difficulty in locating existential estrangement within the interpersonal framework. As such, the extent to which existential estrangement might affect interpersonal behaviour is unclear, although the higher levels of estrangement reported among the two forensic samples indicates that this may be important to explore further in relation to interpersonally aggressive and violent behaviour.

Although the location of 'Existential estrangement' among the HM Prison sample more accurately reflects the theoretical location of communion, it would seem that no conclusive statements can be made here regarding the role of this internal construct in interpersonal interactions. Therefore, it would appear that 'Existential estrangement' is not a good measure of communion with others or society for these samples within this framework. Given the variability and spread of location of 'Existential estrangement' within interpersonal circumplex space among the non-offending volunteer and HM Prison samples, it is not unexpected that there is no clear pattern among the smaller Broadmoor sample also. As such, analyses across the three samples as to 1) the role of existential estrangement in interpersonal interactions, and 2) the relationship more generally between existential estrangement and communion with others or society, are inconclusive.

6.7.3.2.2. Social estrangement

It was anticipated that a high score on the 'Social estrangement' scale (a high level of estrangement) would be predicted by a high score on the 'Cold/Distant' scale and a low score on the 'Self-sacrificing' scale. This is not completely the case, although the
results from analyses with the non-offending volunteer and HM Prison samples would appear to make psychological and theoretical sense. Among these samples, high scores on the 'Vindictive/Self-Centred' and 'Socially Inhibited' scales were predictive of high scores on the 'Social estrangement' scale, suggesting that both individuals who are distrustful, suspicious and uncaring towards others, as well as those who are anxious about initiating social interactions, feel alienated from others. Of course, this relationship may be reciprocal, in that repeated experiences of perceived social rejection and/or perceived hostility from others may foster the experience of social estrangement. What is of interest here is that individuals must seemingly want to be a part of their social environment at some level, in order to feel estranged from it. These two scales are adjacent to the theoretical location of 'Social estrangement'; the 'Cold/Distant' scale correlated with, but was not predictive of, 'Social estrangement'. People who score high on the 'Cold/Distant' scale may enjoy their alienation from society, so would not self-report feelings of social estrangement to the same degree as those who feel that they need to be a part of the world around them.

As expected, a high score on the geographically-opposed 'Self-sacrificing' scale was predictive of low social estrangement among the non-offending volunteer sample, indicating that those who regard themselves as warm, nurturant and generous also enjoy and are comfortable being in the company of others. However, this finding was not replicated with the HM Prison and Broadmoor samples.

Among the Broadmoor sample, 'Social estrangement' was predicted by three scales of the IIP-C, spread equidistantly around the interpersonal Circumplex. As such, the location of 'Social estrangement' within the interpersonal framework is less clear than among the non-offending volunteer and HM Prison samples. Consistent with findings from those samples, high levels of distrust and suspiciousness towards others was also predictive of high levels of social estrangement among the Broadmoor sample. A high score on the 'Non-assertive' scale among this sample of Broadmoor patients is also predictive of a high score on the 'Social estrangement' scale, indicating that individuals who avoid situations that involve social challenge or who anticipate negative evaluation in social interactions feel alienated from their environment. However, this IIP-C scale also correlated with, but was not predictive of, estrangement among the non-offending volunteer and HM Prison samples. Therefore, the small sample size of Broadmoor patients may have contributed to the over-fitting of the data in this case.
The third IIP-C scale to be predictive of 'Social estrangement' among the Broadmoor sample was 'Intrusive/Needy', characterised by individuals who have a powerful need to feel engaged with other people, but who have poor boundaries whilst doing so. A high score on this scale was predictive of low social estrangement. One would expect that people who regularly push social boundaries would be alienated from others; this finding is interesting because it suggests that this sample of Broadmoor patients may have insufficient insight into their own and others' behaviour to be aware of this process of alienation. As such, they may continue to push boundaries, be alienated by others, but not experience social estrangement. However, once again, conclusive interpretations of these results can not be made, not least due to the small size of this sample of mentally disordered offenders.

The 'Social estrangement' scale does appear to reflect communion with others and society among the non-offending volunteer and HM Prison samples, within the interpersonal theoretical framework.

### 6.7.3.3. Empathic ability

The relationship between empathic ability, agency, and communion will be discussed with reference to each of perspective taking ability and empathic concern in turn.

#### 6.7.3.3.1. Perspective taking

It was anticipated that a high score on the 'Perspective taking' scale (a high level of cognitive empathic ability) would be predicted by a high score on the 'Self-sacrificing' scale and a low score on the 'Cold/Distant' scale. This relationship is evidenced, to some degree, among the non-offending volunteer sample. The 'Socially Inhibited' and 'Self-sacrificing' predictor scales appear to make psychological and theoretical sense, with a low score on the first and a high score on the second variable predicting the ability to take the perspective of another. This suggests that individuals who regard themselves as warm, nurturant, and generous, and who easily connect with other people emotionally, are able to appreciate the perspective of others. Conversely, those who find it hard to initiate social interactions and express feelings to others also find it difficult to perspective take. This is interesting as it implicates developmental and social learning models in perspective taking ability, as it suggests that social interactions facilitate the development of this. However, it is not possible to explore this within the current data.
A low score on the 'Domineering/Controlling' scale was also predictive of perspective taking ability among the non-offending volunteer sample. This was surprising, as it locates perspective taking ability with agency, rather than communion with others. However, a high score on the 'Domineering/Controlling' scale is reflective of someone who needs to maintain control over self and others, probably to the extent that the perspective of others is either not considered or is dismissed. Therefore, a high score on this scale would predict a low score on the 'Perspective taking' scale.

The predictive ability of the IIP-C scales was specific to the non-offending volunteer sample, although the 'Vindictive/Self-centred' scale (adjacent to the 'Cold/Distant' scale, the theoretical location of poor perspective taking ability) was also associated with perspective taking ability among the HM Prison sample. People who score high on the 'Vindictive/Self-centred' scale are suspicious towards others and likely to perceive people as being exploitive or deceptive. As such, their ability to effectively appreciate the perspective of another would likely be impaired. The predictive ability of the 'Vindictive/Self-Centred' scale of perspective taking ability among this sample, might suggest that this group of offenders have insight-related difficulties into their perspective taking abilities. An individual's perception of their own perspective-taking ability would likely have been informed by the perceived relative level of perspective taking ability among others in their immediate environment. Evidence of this approach to responding was observed among the Broadmoor sample, in which the researcher was present throughout completion of the questionnaire battery. Of course, the ability to adopt the perspective of another is more socially desirable than to be unable to do so. This would have also been reinforced among the two samples of offenders, of which perspective taking is a feature of cognitive-behavioural approaches to psychological treatment, as well as offence-related group programmes. Therefore, socially desirable responding can not be ruled out of the interpretation of these results.

To some extent, the 'Perspective taking' scale does appear to reflect communion with others among the non-offending volunteer sample, within the interpersonal theoretical framework. Among the HM Prison and Broadmoor samples, this cognitive aspect of empathy does not appear to reflect either agency or communion with others, within the interpersonal theoretical framework. This finding can not be attributable to differences in the level of endorsement of perspective taking ability, as there were no between-sample differences on this scale. It may be that the circumplex structures for
the HM Prison and Broadmoor samples are not sufficiently robust to facilitate a relationship between perspective taking ability and communion with others. Alternatively, the interpersonal circumplex may not be able to account for the full range of individual differences associated with perspective taking ability. However, the extent to which differences were due to insight-related difficulties or social desirability is unclear.

6.7.3.3.2. Empathic concern

The finding that the Broadmoor patients and HM prisoners reported higher levels of empathic concern for others than the non-offending volunteer sample was initially surprising. As was discussed in relation to perspective taking ability, the extent to which this may reflect a social desirability bias is unclear. Furthermore, the HM Prison sample reported more interpersonal problems than either of the non-offending volunteer and Broadmoor samples on the 'Self-sacrificing' scale, which is typical of someone who is protective of others. Therefore, the high self-reported empathic concern among this sample may reflect offending behaviour related to the perception of protecting someone else or looking out for another's best interests.

An alternative explanation might be that these two groups of offenders may also perceive themselves as less fortunate than others and, by the nature of their placement in institutions, of a lower social rank than the non-offending volunteers. As such, it may be that the offenders have more insight into the feelings of others who have negative experiences, as they may be able to more readily identify with such situations. Conversely, the non-offending volunteers may not have been exposed to some of the difficulties which many people (including offenders) experience in life, such as financial and relationship difficulties and a disrupted childhood. Furthermore, 81% of the non-offending volunteers identified themselves as having acquired specific skills or training to carry out their jobs (see appendix 3) and may therefore feel less concerned about others who they perceive do not contribute to society in as much as they perceive themselves to do. This effect of the two forensic samples scoring significantly higher on the 'Empathic Concern' scale may be reduced or reversed if the non-offending volunteer sample were comprised of people working in caring professions (such as nurses, psychologists, or charity workers), although it is not possible to assess this effect with the present data.
It was anticipated that a high score on the 'Empathic concern' scale (a high level of empathic ability) would be predicted by a low score on the 'Cold/Distant' scale and a high score on the 'Self-sacrificing' scale. As with 'Perspective taking', this relationship is evidenced, to some degree, among the non-offending volunteer sample only. Among this sample, a high score on the 'Self-sacrificing' scale was predictive of empathic concern, indicating that people who readily provide help and care for other people in need have compassion and concern for others having negative experiences. A high score on the 'Vindictive/Self-centred' scale (adjacent to the 'Cold/Distant' scale) is characterised by someone who feels little concern for other people and does not care about others' needs, and was also predictive of little empathic concern for others. Together, these two IIP-C scales would appear to reflect positive and negative communion with others, within the interpersonal theoretical framework. However, a similar finding to that of 'Perspective taking' complicates this relationship. A high score on 'Non-assertive' also significantly predicts empathic concern for others among this sample of non-offending volunteers. This suggests that individuals who avoid social challenge and making their own wishes and needs known also have good empathic ability. At some level, this would appear to make psychological sense, although non-assertiveness is motivated by the avoidance of other people's disapproval or negative evaluations that threaten self-esteem. As such, the primary concern is with the self, rather than others.

The significant predictors of 'Empathic concern' among the non-offending volunteer sample do, in part, reflect the communion axis of the Interpersonal Circumplex. However, the additional 'Nonassertive' predictor complicates this relationship. As with the 'Perspective taking' scale, it may be that the Interpersonal Circumplex is unable to account for the full range of personality factors related to one's empathic concern for others. This would go some way to explain the lack of significant predictors of 'Empathic concern' among the HM Prison and Broadmoor samples. However, the extent to which the present findings are related to social desirability can not be discounted.

6.7.4. Summary
This chapter presented a circumplex structure within which to explore the aims of this thesis. In addition, differences in interpersonal style between the three samples were identified, which is indicative of differing interpersonal styles not just between offenders and non-offenders, but also between offenders. The extent to which
interpersonal style is related to agency and communion was also explored. The measures identified as reflecting agency and communion for the purposes of this thesis did so to varying degrees. The measure of self-efficacy appeared to reflect agency within the Interpersonal Circumplex, across two of the samples. Measures of communion included psychological estrangement and empathic ability. Social estrangement appeared to reflect communion within the interpersonal framework. The location of empathic ability and existential estrangement were more difficult to locate within the interpersonal framework, although results indicated that these constructs would be interesting to explore in relation to aggressive and violent behaviour in the context of individual difference factors in subsequent chapters. The principal findings and implications from the present study are as follows:

- The Inventory of Interpersonal Problems-Circumplex Scales generated a good circumplex structure, and would appear to be organised by the principles of agency and communion, as indexed by self-efficacy and social estrangement. This provides not only a good basis for the exploration of interpersonal style in subsequent chapters, but will also help to inform our understanding of the motivation and function of interpersonally aggressive and violent behaviour.

- Violent offenders have different characteristic interpersonal styles, not just from non-offenders, but also from each other. This suggests that the two samples of offenders in the present study might have different treatment needs. In addition, the interpersonal styles of offenders who have committed different interpersonally violent offences may also differ, and so warrant further exploration.
CHAPTER 7

Interpersonal style and aggression

7.1. Aims and overview of the chapter
This chapter aims to examine the relationship between aggression, as measured by a self-report psychometric test, and interpersonal style. Differences between non-offenders and two samples of violent offenders on measures of interpersonal style were found in Chapter 6. Therefore, the extent to which these samples also differ in terms of trait aggression will be explored in the present study. In addition, this chapter aims to assess the degree to which aggressive behaviour is related to measures of agency, communion, and specific individual difference factors. All analyses are based on the samples discussed and described in Chapter 5.

Differences in self-reported aggression between the non-offending, prisoner and mentally disordered offender samples will be presented first. This will be followed by analyses of the extent to which self-reported aggression is related to measures of agency, communion, and specific individual difference factors. It is anticipated that the results from these analyses will help to inform the hypothesised location of aggression in interpersonal space. Thereafter, explorations of the location of aggression in interpersonal space and the interrelationship between interpersonal style and aggression will be presented. Finally, the aims of the present chapter, relative to the results presented herein, will be discussed.

7.2. Background to the present study
Previous research (Anderson, 2002; Blackburn, 1998a; Cooke and Michie, 2001; Harpur et al., 2002; Hart and Hare, 1994; McCartney et al., 1999; Miller et al., 2003) has alluded to an association between violence and deviant interpersonal style. Specifically, this research has suggested that violent behaviour is located primarily in the ‘Cold/Distant’ – ‘Domineering/Controlling’ quadrant of the Interpersonal Circumplex. Typically, explorations of the association between interpersonal style and violence have been carried out through the medium of psychopathy (Cooke and Michie, 2001; Harpur et al., 2002; Hart and Hare, 1994; Miller et al., 2003). This approach appears to pathologise violence and is also unable to consider forms of violent behaviour which are not typical to the psychopath. In particular, the degrees of aggressive and violent behaviour are dismissed. For example, some forms of
relatively socially (contextually) acceptable behaviour, such as scuffles between individuals in a pub, differ from cold-blooded murder. As such, violent and aggressive behaviour is not restricted to offending populations but may also be prevalent to lesser degrees among ‘non-offending’ populations. The extent to which the interpersonal styles of non-offenders and violent offending populations may differ was explored in Chapter 6, but there is generally a paucity of research which has explored the association between interpersonal style and aggressive and violent behaviour directly. Previous research which has explored this relationship has relied on offending history (Anderson, 2002; Blackburn, 1998a) or Mental Health Act 1983 classification (McCartney et al., 1999). One difficulty with these methods is that the strength of association between interpersonal style and previous violent behaviour may be unclear, due to the potentially long period of time distinguishing the act from the measurement of individual differences at the time of research.

This chapter aims to examine the relationship between aggression, as measured by a self-report psychometric test, and interpersonal style. Differences in aggression between the non-offending volunteer, HM Prison and Broadmoor samples will be explored, and the relationship between this and interpersonal style will be investigated. Specific components of aggression which were identified in Chapter 3 as being relatively stable individual characteristics were hostility and anger. These will be assessed within the measure of aggression employed in this chapter. It is hypothesised that hostility will be related to a vindictive/self-centred interpersonal style, characterised by suspiciousness towards other people and the belief that others are being exploitive or deceptive. The location of anger within the Interpersonal Circumplex is more difficult to predict, particularly as this has been found to mediate the relationship between different facets of aggression (see section 5.4.2. of Chapter 5). Whilst previous research has located violent behaviour within the ‘Cold/Distant’ – ‘Domineering/Controlling’ quadrant, this has not been applied to direct measures of aggression. Certainly, the hypothesised location of hostility is consistent with previous research (the ‘Vindictive/Self-centred’ scale sitting in the middle of this quadrant), although the location of different expressions of physical and verbal aggression sit less obviously within the Interpersonal Circumplex structure. In particular, motivational factors complicate this relationship.

Furthermore, this chapter aims to explore the extent to which aggressive behaviour is related to measures of agency and communion. Specific individual difference factors
related to aggressive and violent behaviour were discussed in Chapter 3, and the extent to which these factors are related to agency and communion within the Interpersonal Circumplex was explored in Chapter 6. Therefore, this chapter will explore the degree to which self-reported aggression is related to self-efficacy, psychological estrangement, and empathic ability. An understanding of these relationships will further inform hypotheses about the location of aggression in interpersonal space.

Perceived self-efficacy affects aggression through motivational, cognitive and affective intervening processes (Bandura, 1992a). Specifically, it determines the extent to which an individual believes that an aggressive act can be performed, in relation to whether they believe that a specific outcome will occur. When reinforced psychologically, agency can create a feeling of being in control, an extremely powerful component in any human behaviour. As such, it is hypothesised that self-efficacy will be related to a domineering interpersonal style, as reflected by the interpersonal axis of agency.

The role of empathic ability in interpersonally aggressive and violent behaviour is not straightforward. There is some experimental work to suggest that victim feedback of pain reduces subsequent aggressive behaviour within the same interpersonal context. Certainly, it would appear that an individual may be highly empathic of the painful experiences of another person but this, in itself, could further reinforce aggressive and violent behaviour. The relationship between empathic ability and self-reported aggression will also be explored in this chapter. The function and motivation for interpersonally aggressive and violent behaviour would appear to mediate empathic concern for the victim.

Developmental research into aggressive and violent behaviour indicates that alienation from (non-delinquent) peers during childhood is important in the commission of future violent offences. Furthermore, the social and psychological difficulties associated with the experience of childhood abuse suggest that difficulties with forming attachments with others, in conjunction with rejection from peers can lead to a general lack of communion with others. The relationship between psychological estrangement and self-reported aggression will also be explored in this chapter.
7.3. Between-sample tests of difference on the Aggression Questionnaire

In order to explore whether there are differences in Aggression Questionnaire (AQ; Buss and Warren, 2000) scores across the samples, multivariate analysis of variance (MANOVA) with group (a random sample of 60 non-offending volunteers, 54 violent offender patients at Broadmoor Hospital, a random sample of 60 violent offenders within HM Prison Service) as the independent variable, was performed across the four scales of the AQ: Physical aggression, Verbal aggression, Anger, Hostility. Using Wilks' criterion, a main effect of group was found ($F(2,171)=7.61, p<0.01$), with significant between-groups effects on the 'Physical aggression' ($F(2,171)=15.12, p<0.01$) and 'Hostility' ($F(2,171)=8.50, p<0.01$) scales. Post hoc (Dunnett's C) testing revealed that the non-offending volunteer group scored significantly lower than the Broadmoor and HM Prison groups on both scales. The Broadmoor sample also scored significantly lower than the HM Prison sample of the 'Hostility' scale. Mean values across samples for this scale are presented in Figure 7.1.

Figure 7.1: Mean scores for the 'Physical aggression' and 'Hostility' scales of the Aggression Questionnaire, for random samples of non-offending volunteers and HM prisoners and the total Broadmoor sample.
The HM Prison and Broadmoor samples were selected on the basis of violent offending history. Therefore, it is not unexpected that there are differences between these samples and the non-offending volunteer sample on this self-reported measure of aggression, particularly 'Physical aggression'. Despite significant differences between the non-offending volunteers and the two forensic (HM Prison and Broadmoor) samples, all scores fell within the normal range, relative to normative published data for males in the 19-39 years age group (Buss and Warren, 2000). However, the non-offending volunteer sample scored in the lower part of the normal range and the HM Prison sample scores fell within the upper range. In section 5.4.2.2.1. of Chapter 5, it was observed that a sample of prisoners in the United States (Buss and Warren, 2000) scored consistently lower across scales of the AQ than the present HM Prison sample. In particular, the U.S. sample mean score for 'Physical aggression' was 2.5 points lower than that of the present sample, and 'Hostility' was 1.15 points lower. However, the small sample of U.S. prisoners achieved a lower score than their normative counterparts on the 'Physical Aggression' scale. Therefore, comparisons may be restricted by the small sample size.

It was suggested in section 5.4.2.2.1. of Chapter 5 that there may be differences between North American and British samples in relation to self-reported aggression. Across scores on the 'Physical aggression' scale, the present non-offending volunteer sample achieved a mean score of 3 points lower than the North American normative sample of males aged 19-39 years, the Broadmoor sample score was comparable, and the HM Prison sample scored 2 points higher than the standardisation sample. This would suggest that there are cross-cultural differences in the experience or reporting of physical aggression and, as such, there would appear to be a need for British norms on the Aggression Questionnaire. Relative to the present non-offending volunteer sample transformed scores (mean of 50, standard deviation of 10; see appendix 25), the HM Prison sample scored more than one standard deviation from the mean on both the 'Physical aggression' and 'Hostility' scales, that is, outside of the 'normal range'. The Broadmoor sample scored within the upper range on both scales.
7.4. The relationship between aggression and agency, communion, and specific individual difference factors

This section will focus on the extent to which agency and communion are related to self-reported aggression. Chapter 6 indicated that the General Perceived Self-Efficacy questionnaire (GSE; Schwarzer and Jerusalem, 1995) was a good measure of negative agency, and that the 'Social estrangement' scale of the 'Psychological Estrangement' questionnaire (PSE; Hammond, 1988) reflected communion with others. This section will also explore the relationship between specific individual difference factors and aggression, namely: ‘Existential estrangement’ (Hammond, 1988); ‘Perspective taking’ and ‘Empathic concern’ (Davis, 1980). Originally included as measures of agency and communion, the results presented in Chapter 6 indicated that further analyses of these scales in relation to aggressive and violent behaviour was warranted. Analyses in sections 6.5. and 6.6. of Chapter 6 indicated that the samples differed both across these scales and in terms of how these scales were related to interpersonal style. Therefore, it was anticipated that there would also be differences between the samples on the relationship between self-reported aggression and self-efficacy.

7.4.1. Assessing the relationship between general perceived self-efficacy and aggression

In order to explore the relationship between self-efficacy and self-reported aggression, a series of Pearson's product-moment coefficients were computed between the ‘Physical aggression’, 'Verbal aggression', 'Anger', and 'Hostility' scales of the Aggression Questionnaire (AQ; Buss and Warren, 2000) and the GSE, across each of the non-offending volunteer, HM Prison and Broadmoor samples. Correlations are presented in Table 7.1.

Table 7.1: Pearson's product-moment coefficients between four scales of the Aggression Questionnaire and the General Self-Efficacy questionnaire, across each of the non-offending volunteer, HM Prison and Broadmoor samples

<table>
<thead>
<tr>
<th></th>
<th>Non-offending volunteer sample (n=328)</th>
<th>HM Prison sample (n=121)</th>
<th>Broadmoor sample (n=54)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GSE</td>
<td>GSE</td>
<td>GSE</td>
</tr>
<tr>
<td>Physical aggression</td>
<td>-.02</td>
<td>-.19*</td>
<td>.03</td>
</tr>
<tr>
<td>Verbal aggression</td>
<td>.06</td>
<td>-.02</td>
<td>13</td>
</tr>
<tr>
<td>Anger</td>
<td>-.18**</td>
<td>-.24**</td>
<td>-.06</td>
</tr>
<tr>
<td>Hostility</td>
<td>-.24**</td>
<td>-.35**</td>
<td>-.15</td>
</tr>
</tbody>
</table>

* significant at the 0.05 level; ** significant at the 0.01 level
Among the non-offending volunteer and HM Prison samples, general self-efficacy correlated negatively with 'Anger' and 'Hostility'. Post hoc analyses did not reveal any significant differences between 'Anger' and 'Hostility' in relation to their strength of association to the GSE scale: $z=0.80$, $p=n/s$ (non-offending volunteer sample); $z=-0.90$, $p=n/s$ (HM Prison sample). This indicates that, despite the difference in strength of coefficients, self-efficacy was equally negatively associated with both the self-reported experience of anger and hostility. Therefore, people who reported that they typically attribute hostility to others' intentions and experience high levels of anger also do not have a sense of personal control.

Furthermore, among the HM Prison sample, 'Physical aggression' was also negatively associated with self-efficacy. There was no difference in strength of association between 'Physical aggression' and 'Hostility' ($z=-1.35$, $p=n/s$) or 'Anger' ($z=-0.45$, $p=n/s$), indicating that self-efficacy was equally negatively associated with all three scales of the AQ. Therefore, prisoners who reported that they have difficulty controlling the impulse to use physically aggressive behaviour also report not having a sense of general personal control. These results will be discussed further in section 7.7..

### 7.4.2. Assessing the relationship between psychological estrangement and aggression

In order to explore the relationship between psychological estrangement and self-reported aggression, a series of Pearson's product-moment coefficients were computed between the 'Physical aggression', 'Verbal aggression', 'Anger', and 'Hostility' scales of the AQ and the 'Existential estrangement' and 'Social estrangement' scales of the PSE, across each of the non-offending volunteer, HM Prison and Broadmoor samples. Correlations are presented in Table 7.2.
Table 7.2: Pearson’s product-moment coefficients between four scales of the Aggression Questionnaire and the ‘Existential estrangement’ and ‘Social estrangement’ scales, across each of the non-offending volunteer, HM Prison and Broadmoor samples

<table>
<thead>
<tr>
<th></th>
<th>Non-offending volunteer sample (n=329)</th>
<th>HM Prison sample (n=122)</th>
<th>Broadmoor sample (n=53)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EE</td>
<td>SE</td>
<td>EE</td>
</tr>
<tr>
<td>Physical aggression</td>
<td>-.18**</td>
<td>.09</td>
<td>-.33**</td>
</tr>
<tr>
<td>Verbal aggression</td>
<td>-.07</td>
<td>.13*</td>
<td>-.15</td>
</tr>
<tr>
<td>Anger</td>
<td>-.35**</td>
<td>.25**</td>
<td>-.46**</td>
</tr>
<tr>
<td>Hostility</td>
<td>-.62**</td>
<td>.44**</td>
<td>-.75**</td>
</tr>
</tbody>
</table>

* significant at the 0.05 level; ** significant at the 0.01 level

EE: Existential estrangement SE: Social estrangement

7.4.2.1. Existential estrangement

Among all three samples, ‘Existential estrangement’ was negatively associated with ‘Physical aggression’, ‘Anger’ and ‘Hostility’. Among the Broadmoor sample, ‘Verbal aggression’ also negatively correlated with ‘Existential estrangement’. A low score on the ‘Existential estrangement’ scale is indicative of a feeling of being psychologically distant from the self and confused about the state of the world. The present results indicate that people who experience this form of estrangement also self-reported increasing levels of aggression.

Across all three samples, ‘Hostility’ was most strongly associated with ‘Existential estrangement’. The difference in the strength of the correlation with ‘Existential estrangement’ was significantly different from that of ‘Anger’ for two samples: z=-4.65, p<0.01 (non-offending volunteer sample); z=-3.63, p<0.01 (HM Prison sample). For the Broadmoor sample, no differences in the strength of association with ‘Existential estrangement’ were found for ‘Anger’ and ‘Hostility’ (z=-1.19, p=n/s), ‘Anger’ and ‘Physical aggression’ (z=-1.57, p=n/s), or ‘Hostility’ and ‘Physical aggression’ (z=-0.38, p=n/s).

For the non-offending volunteer sample, ‘Anger’ was the second most strongly associated aggression scale with ‘Existential estrangement’, and was significantly stronger than ‘Physical aggression’ (z=2.35, p<0.05). For the HM Prison sample, ‘Anger’ and ‘Physical aggression’ were equally negatively associated with ‘Existential estrangement’ (z=1.19, p=n/s). Among the Broadmoor sample, ‘Verbal aggression’ was also negatively associated with ‘Existential estrangement’, although less so than ‘Anger’ (z=-2.04, p<0.05).
To summarise, among the non-offending volunteer sample, high levels of existential estrangement were most strongly associated with high levels of hostility, followed by anger, followed by physical aggression. Among the HM Prison sample, high levels of existential estrangement were most strongly associated with high levels of hostility, followed by anger and physical aggression. For the Broadmoor sample, high levels of existential estrangement were most strongly associated with anger, hostility and physical aggression, followed by verbal aggression. These results will be discussed further in section 7.7.

7.4.2.2. Social estrangement
Among all three samples, 'Social estrangement' was positively correlated with 'Hostility' and 'Anger' (there was no significant difference in the strength of correlations between these two AQ scales for the Broadmoor sample: z=0.23, p=n/s). A high score on the 'Social estrangement' scale indicates a feeling of social alienation. Therefore, people who reported feelings of alienation from society and from others also self-reported high levels of hostility and anger.

Among the non-offending volunteer sample, 'Hostility' was more strongly associated with 'Social estrangement' than 'Anger' (z=2.75, p<0.01). 'Verbal aggression' was also associated with 'Social estrangement', to the similar extent to 'Anger' (z=-.159, p=n/s). Among the HM Prison sample, 'Social estrangement' was equally associated with both 'Hostility' and 'Anger' (z=1.45, p=n/s). 'Physical aggression' also positively correlated with 'Social estrangement', although less so than 'Hostility' (z=2.37, p<0.05). There was no significant difference between the strength of association of 'Physical aggression' - 'Social estrangement' and 'Anger' - 'Social estrangement' among the Broadmoor sample (z=0.34, p=n/s). This indicates that high levels of social estrangement were associated with high levels of anger, hostility and physical aggression among this sample of Broadmoor patients.

To summarise, 'Social estrangement' was most strongly associated with 'Hostility', followed by 'Anger' and 'Verbal aggression' among the non-offending volunteer sample. 'Social estrangement' was most strongly associated with 'Hostility' and 'Anger', followed by 'Physical aggression' among the HM Prison sample. 'Anger', 'Hostility' and 'Physical aggression' were all similarly associated with 'Social estrangement' among the Broadmoor sample. These results will be discussed further in section 7.7.
7.4.3. Assessing the relationship between empathic ability and aggression

In order to explore the relationship between empathic ability and self-reported aggression, a series of Pearson's product-moment coefficients were computed between the 'Physical aggression', 'Verbal aggression', 'Anger', and 'Hostility' scales of the AQ and the 'Perspective taking' and 'Empathic concern' scales of the IRI, across each of the non-offending volunteer, HM Prison and Broadmoor samples. Correlations are presented in Table 7.3.

Table 7.3: Pearson's product-moment coefficients between four scales of the Aggression Questionnaire and the 'Perspective taking' and 'Empathic concern' scales, across each of the non-offending volunteer, HM Prison and Broadmoor samples

<table>
<thead>
<tr>
<th></th>
<th>Non-offending volunteer sample (n=329)</th>
<th>HM Prison sample (n=122)</th>
<th>Broadmoor sample (n=53)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PT</td>
<td>EC</td>
<td>PT</td>
</tr>
<tr>
<td>Physical aggression</td>
<td>-.18**</td>
<td>-.06</td>
<td>-.50**</td>
</tr>
<tr>
<td>Verbal aggression</td>
<td>-.08</td>
<td>-.03</td>
<td>-.24**</td>
</tr>
<tr>
<td>Anger</td>
<td>-.26**</td>
<td>-.05</td>
<td>-.47**</td>
</tr>
<tr>
<td>Hostility</td>
<td>-.23**</td>
<td>-.12*</td>
<td>-.31**</td>
</tr>
</tbody>
</table>

* significant at the 0.05 level; ** significant at the 0.01 level

PT: Perspective taking  
EC: Empathic concern

7.4.3.1. Perspective taking

Among the non-offending volunteer and HM Prison samples, 'Anger', 'Hostility', and 'Physical aggression' were negatively correlated with 'Perspective taking'. Increasingly high scores on the 'Perspective taking' scale reflect the ability to take another's perspective. Therefore, poor perspective taking ability is associated with the self-reported experience of anger, hostility, and the use of physical aggression. In addition, 'Verbal aggression' was also negatively correlated with 'Perspective taking' among the HM Prison sample.

Among the non-offending volunteers, the strength of association of 'Anger' to 'Perspective taking' was not significantly different from that of either 'Hostility' (z=-.04, p=n/s) or 'Physical aggression' (z=-1.05, p=n/s). Therefore, perspective taking ability was fairly equally associated with self-reported physical aggression, anger, and hostility.
Among the HM Prison sample, the relationship between 'Physical aggression' and 'Perspective taking' was not significantly different from that of either 'Anger' (z=-0.3, p=n/s) or 'Hostility' (z=-1.75, p=n/s). Therefore, perspective taking ability was fairly equally associated with self-reported physical aggression, anger, and hostility. 'Verbal aggression' also correlated negatively with 'Perspective taking', although the strength of this correlation was not as strong as that with 'Physical aggression' (z=-2.35, p<0.05).

No significant relationships were found between perspective taking ability and aggression among the Broadmoor sample. These results will be discussed further in section 7.7.

7.4.3.2. Empathic concern

'Empathic concern' was significantly negatively correlated with 'Hostility' among the non-offending volunteer sample. A high score on the 'Empathic concern' scale would be indicative of someone empathic towards others' experiences. Therefore, this finding indicates that the less able someone is to be empathic towards others, the more hostility they will also experience. However, the strength of this correlation was not significantly different from the association between 'Physical aggression' and 'Empathic concern' (z=-.081, p=n/s).

No significant relationships were found between 'Empathic concern' and aggression among the HM Prison and Broadmoor samples. These results will be discussed further in section 7.7.

7.5. The location of aggression in interpersonal space

This section aims to locate aggression within the Interpersonal Circumplex, relative to both interpersonal space and interpersonal variables. In each case, aggression will be indexed by four scales of the Aggression Questionnaire (AQ; Buss and Warren, 2000): Physical aggression, Verbal aggression, Anger, Hostility. First, analyses will be presented for each sample relative to interpersonal space, followed by aggression in relation to interpersonal variables (as indexed by the Inventory of Interpersonal Problems-Circumplex Scales, IIP-C; Horowitz et al., 2000): Domineering/Controlling, Vindictive/Self-centred, Cold/Distant, Socially Inhibited, Nonassertive, Overly Accommodating, Self-sacrificing, Intrusive/Needy.
7.5.1. The location of aggression relative to interpersonal space

Section 6.3 of Chapter 6 presented interpersonal circumplex structures for each of the three non-offending volunteer, HM Prison and Broadmoor samples. Although the spatial representation of the structure differed between samples, each circumplex was structured around the principal components-generated axes of 'Dominance-Submission' and 'Coldness-Friendliness'. In order to explore the relative location of aggression variables in interpersonal space, regression factor scores for each of the two components were computed and Pearson's product-moment coefficients between these scores and the four AQ variables were calculated. These coefficients were then plotted onto interpersonal space, relative to each of the samples.

7.5.1.1. Non-offending volunteer sample

Pearson's product-moment coefficients between four AQ scales and the regression factor scores for each of the two principal components of the deviation-scored scale scores of the IIP-C are presented in Table 7.4 (n=328).

<table>
<thead>
<tr>
<th></th>
<th>Physical aggression</th>
<th>Verbal aggression</th>
<th>Anger</th>
<th>Hostility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dominance - Submission</td>
<td>.29</td>
<td>.49</td>
<td>.26</td>
<td>.05</td>
</tr>
<tr>
<td>Coldness - Friendliness</td>
<td>.08</td>
<td>.01</td>
<td>.06</td>
<td>.31</td>
</tr>
</tbody>
</table>

Coefficients are plotted relative to non-offending volunteer sample interpersonal circumplex space in Figure 7.2.
The location of the AQ variables in non-offending volunteer interpersonal space indicates that aggression, anger, and hostility are all most strongly associated with the 'Domineering/Controlling' – 'Cold/Distant' area of this space.

7.5.1.2. HM Prison sample

Pearson's product-moment coefficients between four AQ scales and the regression factor scores for each of the two principal components of the deviation-scored scale scores of the IIP-C are presented in Table 7.5 (n=120).
Table 7.5: Pearson’s product-moment coefficients between four scales of the Aggression Questionnaire and regression factor scores for the ‘Dominance-Submission’ and ‘Coldness-Friendliness’ components of the Inventory of Interpersonal Problems-Circumplex Scales: HM Prison sample

<table>
<thead>
<tr>
<th></th>
<th>Physical aggression</th>
<th>Verbal aggression</th>
<th>Anger</th>
<th>Hostility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dominance - Submission</td>
<td>.40</td>
<td>.47</td>
<td>.25</td>
<td>-.12</td>
</tr>
<tr>
<td>Coldness - Friendliness</td>
<td>.06</td>
<td>-.11</td>
<td>.08</td>
<td>.15</td>
</tr>
</tbody>
</table>

Coefficients are plotted relative to HM Prison sample interpersonal circumplex space in Figure 7.3.

Figure 7.3: The location of Aggression Questionnaire variables relative to regression factor scores for the ‘Dominance-Submission’ and ‘Coldness-Friendliness’ components of the Inventory of Interpersonal Problems-Circumplex Scales: HM Prison sample

'Physical': Physical aggression
'Verbal': Verbal aggression
The location of the AQ variables in HM Prison sample interpersonal space indicates that aggression, anger, and hostility are all most strongly associated with the 'Domineering/Controlling' – 'Cold/Distant' area of this space.

### 7.5.1.3. Broadmoor sample

Pearson's product-moment coefficients between four AQ scales and the regression factor scores for each of the two principal components of the deviation-scored scale scores of the IIP-C are presented in Table 7.6 (n=54).

**Table 7.6: Pearson's product-moment coefficients between four scales of the Aggression Questionnaire and regression factor scores for the 'Dominance-Submission' and 'Coldness-Friendliness' components of the Inventory of Interpersonal Problems-Circumplex Scales: Broadmoor sample**

<table>
<thead>
<tr>
<th></th>
<th>Physical aggression</th>
<th>Verbal aggression</th>
<th>Anger</th>
<th>Hostility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dominance-Submission</td>
<td>.29</td>
<td>.30</td>
<td>.20</td>
<td>.16</td>
</tr>
<tr>
<td>Coldness-Friendliness</td>
<td>-.16</td>
<td>.03</td>
<td>-.19</td>
<td>-.12</td>
</tr>
</tbody>
</table>

Coefficients are plotted relative to Broadmoor sample interpersonal circumplex space in Figure 7.4.

**Figure 7.4: The location of Aggression Questionnaire variables relative to regression factor scores for the 'Dominance-Submission' and 'Coldness-Friendliness' components of the Inventory of Interpersonal Problems-Circumplex Scales: Broadmoor sample**

'Physical': Physical aggression  
'Verbal': Verbal aggression
The location of the AQ variables in Broadmoor sample interpersonal space indicates that aggression, anger, and hostility are all most strongly associated with the 'Domineering/Controlling' – 'Cold/Distant' area of this space.

7.5.2. The location of aggression relative to interpersonal variables

In order to explore the location of aggression variables in relation to interpersonal variables, a series of Smallest Space Analyses (SSA) were performed. SSA explores the relationships between variables, relative to each other, such that variables closer to each other in space are more strongly associated than those which are distant. The coefficient of alienation (ranging from 0 to 1), or stress, indicates the extent to which the spatial representation reflects the correlation matrix, with zero indicating perfect correspondence. However, there are no rigid guidelines as to what constitutes a 'good' stress measure (Hammond, 2000). Fritzon and Brun (2005) report that acceptable Guttman-Lingoes coefficients range from between 0.15 to 0.24. The Kruskal's stress values presented in the following analyses are considered conservative (Hammond, 2000). All analyses employed the Euclidean distance model.

7.5.2.1. Non-offending volunteer sample

Figure 7.5 shows the two-dimensional SSA solution which was found to have a Kruskal's stress value of 0.25 and converged in four iterations (n=328).
The relative order of the interpersonal variables in circumplex space remains the same, although the space is somewhat distorted by the aggression variables. The sequential locations of 'Verbal aggression', 'Anger', and 'Physical aggression' reflect those of Figure 7.2, and fall clearly between the interpersonal 'Domineering/Controlling' and 'Vindictive/Self-centred' scales. Furthermore, 'Anger' is located equidistant from both 'Physical' and 'Verbal aggression', suggesting that this mediates both forms of aggression. This SSA demonstrates a strong association between 'Hostility' and 'Vindictive/Self-centred'.

### 7.5.2.2. HM Prison sample

Figure 7.6 shows the two-dimensional SSA solution which was found to have a Kruskal's stress value of 0.25 and converged in three iterations (n=120).
Once again, the relative order of the interpersonal variables in circumplex space remains the same, although the space is clearly distorted by the aggression variables. The sequential locations of 'Verbal aggression', 'Physical aggression' and 'Anger' reflect those of Figure 7.3. However, the strengths of association between 'Domineering/Controlling' and 'Anger' and 'Physical aggression' in particular are stronger than those of the non-offending volunteer sample. Among the HM Prison sample, 'Anger' would appear to be more closely associated with 'Physical aggression', rather than 'Verbal aggression'. In addition, the location of 'Intrusive/Needy' indicates that this scale has little conceptual association with aggression among this sample, despite its theoretical location. 'Hostility' is most associated with the 'Vindictive/Self-centred' and 'Cold/Distant' scales, and appears to have less association with 'Physical-' and 'Verbal aggression'.
7.5.2.3. Broadmoor sample

Figure 7.7 shows the two-dimensional SSA solution which was found to have a Kruskal's stress value of 0.25 and converged in three iterations (n=54).

Figure 7.7: Two-dimensional Smallest Space Analysis solution of the Inventory of Interpersonal Problems-Circumplex Scales and four Aggression Questionnaire scales: Broadmoor sample

Once again, the relative order of the interpersonal variables in circumplex space remains the same, although the space is clearly distorted by the aggression variables. The sequential locations of 'Verbal aggression', 'Physical aggression', 'Anger', and 'Hostility' reflect those of Figure 7.4, and are clearly located between the 'Domineering/Controlling' and 'Vindictive/Self-centred' scales. 'Anger' and 'Hostility' are more closely associated within this solution, although 'Hostility' has less association with 'Physical-' and 'Verbal aggression'. Once again, 'Hostility' is strongly associated with the 'Vindictive/Self-centred' scale. The location of 'Intrusive/Needy' indicates that this scale has little conceptual association with aggression among this sample, despite its theoretical location.
7.5.3. Summary

The analyses which presented the location of Aggression Questionnaire variables relative to interpersonal space yielded comparable positioning of 'Verbal aggression', 'Physical aggression', 'Anger' and 'Hostility' across each of the samples. This is despite the slight differences in the structure of interpersonal space for each sample. This provides evidence for the location of self-reported aggression, as indexed by the Aggression Questionnaire, as being in the 'Cold/Distant' – 'Domineering/Controlling' area of the interpersonal circumplex. This relative location is consistent across samples.

The analyses which presented the location of aggression variables in relation to interpersonal variables indicated that the 'Domineering/Controlling' scale was most conceptually related to 'Physical aggression', 'Verbal aggression' and 'Anger', whilst the 'Vindictive/Self-centred' scale was most related to 'Hostility'. Generally, aggression variables were located between the two interpersonal variables, although there were differences between the samples. Furthermore, despite its theoretical location and association with 'Domineering/Controlling', the 'Intrusive/Needy' scale had little conceptual association with aggression, particularly among the HM Prison and Broadmoor samples. The strength of association of the four aggression variables with the interpersonal variables would appear to locate aggression within the 'Domineering/Controlling' – 'Cold/Distant' area of the Interpersonal Circumplex. The results of the analyses presented in this section will be discussed further in section 7.7.

However, it may be too simplistic to consider that aggressive behaviour is associated with just one, two, or three interpersonal styles, as this would suggest that an individual with an interpersonal style most strongly characterised by the 'Overly Accommodating' style, for example, would not use aggressive or violent behaviour. The Interpersonal Circumplex claims to account for the full range of interpersonal behaviour and, as such, it is anticipated that individuals characterised by other interpersonal styles, not restricted to the 'Domineering/Controlling' – 'Cold/Distant' quadrant, will also use aggressive and violent behaviour. Chapter 3 presented evidence for a combination of individual difference and contextual factors contributing towards aggressive and violent behaviour. The results of the analyses presented in this section would not appear to account for the full range of cognitive, affective, and motivational factors associated with the expression of aggressive behaviour.
Analyses presented in section 6.6. of Chapter 6 and 7.4 of the present Chapter suggest that individuals characterised by other interpersonal scales also self-reported aggressive behaviour. For example, poor self-efficacy was predicted by a high score on the 'Nonassertive' scale and was also associated with high levels of hostility and anger; social estrangement was predicted by a high score on the 'Socially Inhibited' scale and was also associated with hostility and physical aggression. This would suggest that the relationship between aggression and interpersonal style is more complex than has been presented in this section. Therefore, the following section will explore the interrelationships between aggression and interpersonal style.

7.6. Exploring the inter-relationship between aggression and Interpersonal style

In order to explore the inter-relationships between aggression (as indexed by the Aggression Questionnaire, AQ; Buss and Warren, 2000) and interpersonal style (as indexed by the Inventory of Interpersonal Problems – Circumplex Scales, IIP-C; Horowitz et al., 2000), a series of canonical correlation analyses were performed on the eight scales of the IIP-C and four of the AQ scales. Canonical correlation analysis identifies dimensions amongst two sets of variables and maximises the relationship between them. This provides some indication of the structure of the two variable sets as they relate to a dependence relationship (Hair, Anderson, Tatham and Black, 1998). Inter-relationships were first explored with the non-offending volunteer sample, and the strength of these relationships tested with the HM Prison sample. Analysis was also performed on the Broadmoor sample, although the sample size did not permit meaningful conclusions to be drawn.

Canonical correlation was performed between the eight scales of the IIP-C (the interpersonal set) and four of the AQ scales (the aggression set). The interpersonal set comprised 'Domineering/Controlling', 'Vindictive/Self-Centred', 'Cold/Distant', 'Socially Inhibited', 'Non-assertive', 'Overly Accommodating', 'Self-Sacrificing' and 'Intrusive/Needy'. The aggression set included 'Physical aggression', 'Verbal aggression', 'Anger' and 'Hostility'. Across both sets of variables, increasingly high scores reflected more self-reported interpersonal problems and tendency to experience aggressive behaviour.
7.6.1. Canonical correlation analysis with non-offending volunteer sample

To improve linearity of relationship between variables and normality of their distributions, logarithmic transformation was applied to 'Physical aggression'. No within-set multivariate outliers were identified, so the full potential sample of 331 participants was entered into analysis.

The first canonical correlation was .78 (61% overlapping variance); the second was .72 (52% overlapping variance); the third canonical correlation was .44 (20% overlapping variance). The fourth canonical correlation was .18 (3% overlapping variance). With all four canonical correlations included, $F(32)=25.15$, $p<0.01$; with the first canonical correlation removed, $F(21)=17.76$, $p<0.01$; with the second canonical correlation removed, $F(12)=7.08$, $p<0.01$. The final F test was not statistically significant. Therefore, the first three pairs of canonical variates accounted for the significant relationships between the two sets of variables.

Data on the first three pairs of canonical variates appear in Table 7.7. Shown in the table are correlations between the variables and the canonical variates, standardised canonical coefficients, within-set variance accounted for by the canonical variates (percent of variance), redundancies, and canonical correlations. Total percent of variance and total redundancy indicate that the first pair of canonical variates was strongly related, the second pair was moderately related, but the third pair was only minimally related; interpretation of the third pair is questionable.
Table 7.7: Correlations, standardised canonical coefficients, canonical correlations, percents of variance, and redundancies between aggression and interpersonal variables and their corresponding canonical variates for the non-offending volunteer sample

<table>
<thead>
<tr>
<th>Aggression set</th>
<th>1st canonical variate</th>
<th>2nd canonical variate</th>
<th>3rd canonical variate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Correlatio n</td>
<td>Coeff.</td>
<td>Correlatio n</td>
</tr>
<tr>
<td>Physical aggression</td>
<td>.38</td>
<td>-.08</td>
<td>.88</td>
</tr>
<tr>
<td>(log)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbal aggression</td>
<td>.76</td>
<td>.42</td>
<td>.48</td>
</tr>
<tr>
<td>Anger</td>
<td>.76</td>
<td>-.01</td>
<td>.12</td>
</tr>
<tr>
<td>Hostility</td>
<td>.95</td>
<td>.76</td>
<td>-.17</td>
</tr>
<tr>
<td>Percent of variance</td>
<td>55.01%</td>
<td>26.12%</td>
<td>8.09%</td>
</tr>
<tr>
<td>Redundancy</td>
<td>33.61%</td>
<td>13.52%</td>
<td>1.57%</td>
</tr>
<tr>
<td>Interpersonal set</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domineering/Controlling</td>
<td>.77</td>
<td>.51</td>
<td>-.25</td>
</tr>
<tr>
<td>Vindictive/Self-Centred</td>
<td>.62</td>
<td>.19</td>
<td>-.13</td>
</tr>
<tr>
<td>Cold/Distant</td>
<td>.39</td>
<td>-.06</td>
<td>.17</td>
</tr>
<tr>
<td>Socially Inhibited</td>
<td>.19</td>
<td>-.21</td>
<td>.7</td>
</tr>
<tr>
<td>Non-assertive</td>
<td>.15</td>
<td>.11</td>
<td>.71</td>
</tr>
<tr>
<td>Overly Accommodating</td>
<td>.51</td>
<td>.11</td>
<td>.62</td>
</tr>
<tr>
<td>Self-Sacrificing</td>
<td>.83</td>
<td>.58</td>
<td>.28</td>
</tr>
<tr>
<td>Intrusive/Needy</td>
<td>.15</td>
<td>.03</td>
<td>.12</td>
</tr>
<tr>
<td>Percent of variance</td>
<td>27.07%</td>
<td>19.66%</td>
<td>11.88%</td>
</tr>
<tr>
<td>Redundancy</td>
<td>16.53%</td>
<td>10.18%</td>
<td>2.31%</td>
</tr>
<tr>
<td>Canonical correlation</td>
<td>.78</td>
<td>.72</td>
<td>.44</td>
</tr>
</tbody>
</table>

With a cut-off correlation of 0.3, all variables in the aggression set correlated with the first canonical variate. Among the interpersonal set, 'Domineering/Controlling', 'Vindictive/Self-Centred', 'Cold/Distant', 'Overly Accommodating' and 'Self-Sacrificing' correlated with the first canonical variate. The first pair of canonical variates indicates that high levels of hostility (.95), anger (.76), verbal aggression (.76) and, to a lesser extent, physical aggression (.38) are associated with self-sacrificing (.83), domineering (.77), vindictive (.62), overly accommodating (.51) and cold/distant (.39) interpersonal styles. A high score on the 'Domineering/Controlling' scale would be typical of someone who others perceive as being hostile, or even aggressive, in their attempts to influence others. Furthermore, they may experience difficulty in taking another's perspective so, as a result, frequently argue with others. A high score on the 'Vindictive/Self-centred' scale would be characteristic of someone who readily experiences and expresses anger and irritability, and has little concern for others.
Both of these scales ('Domineering/Controlling' and 'Vindictive/Self-centred') are also characterised by hostility towards others. A high score on the 'Cold/Distant' scale indicates minimal feeling of affection for and little connection with other people. In contrast, people who score high on the 'Self-Sacrificing' scale protect others from their own negative emotions so, whilst they may experience high levels of anger, they would not typically express this to others. Similarly, those who score high on the 'Overly Accommodating' scale would be reluctant to express (or even feel) anger, for fear of encountering hostility but, in addition, would also have difficulty expressing disagreement with others. This first canonical variate would appear to encompass physical and verbal aggression, anger and hostility in the context of difficulties with appropriate expression of negative emotion.

The second canonical variate in the aggression set was composed of 'Physical aggression' and 'Verbal aggression', while the corresponding canonical variate from the interpersonal set was composed of 'Socially Inhibited', 'Non-assertive' and 'Overly Accommodating'. Taken as a pair, these variates suggest that physical aggression (.88) and verbal aggression (.48) are associated with non-assertive (.71), socially inhibited (.7) and overly accommodating (.62) interpersonal styles. People who score high on the 'Socially Inhibited' and 'Non-assertive' scales are hypersensitive to negative evaluation from others, specifically as this is considered to compound the perception of a lack of self-esteem. They may also be socially avoidant, anxious and feel helpless. The strong contribution of 'Physical aggression' within this canonical variate, and the absence of the emotional mediating 'Anger' variable, suggests that those who are socially inhibited and have difficulties with assertiveness may use physical aggression in the face of perceived threat. The presence of 'Verbal aggression' may also be evident among those whose assertiveness skills are poor, especially among those who score high on 'Overly Accommodating', who typically have difficulty expressing disagreement with others and avoid being assertive.

The third canonical variate in the aggression set comprised negative of 'Verbal aggression', while the corresponding variate from the interpersonal set was composed of 'Domineering/Controlling', 'Vindictive/Self-Centred', 'Cold/Distant' and negative of 'Self-Sacrificing'. Taken as a pair, these variates suggest that cold/distant (.58), domineering (.47) and vindictive (.4) interpersonal styles are associated with the absence of verbal aggression (-.39), but that verbal aggression is associated with a self-sacrificing (-.4) interpersonal style, when the other styles are absent. This third
canonical variate may be distinguishing between self-assertion and verbal aggression. The 'Domineering/Controlling', 'Vindictive/Self-Centred' and 'Cold/Distant' scales seem to be characterised here by some level of self-focused assertiveness, similar to a controlled, business-like interpersonal approach to others. The predominant characteristic of this self-assertion is the 'Cold/Distant' interpersonal style, so, consistent with the interpersonal theoretical framework, the geographically-opposing interpersonal style of 'Self-Sacrificing' is associated with a move away from assertiveness towards verbal aggression. The expression of verbal aggression in those who are typical of the 'Self-Sacrificing' style may be explained through their tendency to assume the painful experiences and feelings of others and to protect others from their own negative emotions. The release of such negative emotions may be projected through minor disagreements or arguments with others, as is typical of the items on the 'Verbal aggression' scale.

7.6.1.1. Summary of canonical correlation analysis with non-offending volunteer sample

The first canonical variate described aggression (as indexed by four scales of the Aggression Questionnaire) in the context of difficulties with appropriate expression of negative emotion. The second canonical variate indicated that physical and verbal aggression are not always emotionally mediated by anger, but may result from perceived or actual threat in conjunction with difficulties with assertiveness. The third canonical variate indicated that, whilst high scores on 'Domineering/Controlling' and 'Vindictive/Self-Centred' specifically had previously been associated with a range of indicators of aggression, they can also be associated with what would appear to be assertiveness, whilst 'Verbal aggression' may be manifest in those who may appear to be interacting in a more pro-social way generally. These results will be discussed further in section 7.7.

7.6.2. Canonical correlation analysis with HM Prison sample

Two within-set multivariate outliers were identified and excluded from analysis (n=118). Assumptions regarding linearity and multicollinearity were met.

The first canonical correlation was .85 (73% overlapping variance); the second was .74 (55% overlapping variance); the third canonical correlation was .39 (16% overlapping variance); the fourth canonical correlation was .28 (8% overlapping variance). With all four canonical correlations included, F(32)=10.88, p<0.01; with the
first canonical correlation removed, $F_{(21)}=6.4$, $p<0.01$; with the second canonical correlation removed, $F_{(12)}=2.4$, $p<0.01$. The fourth pair of canonical variates was not statistically significant. Therefore, the first three pairs of canonical variates accounted for the significant relationships between the two sets of variables.

Data on the first three pairs of canonical variates appear in Table 7.8. Shown in the table are correlations between the variables and the canonical variates, standardised canonical coefficients, within-set variance accounted for by the canonical variates (percent of variance), redundancies, and canonical correlations. Total percent of variance and total redundancy indicate that the first two pairs of canonical variates were strongly related, and that the third pair was minimally so; interpretation of the third pair is questionable.

Table 7.8: Correlations, standardised canonical coefficients, canonical correlations, percents of variance, and redundancies between aggression and interpersonal variables and their corresponding canonical variates for the HM Prison sample

<table>
<thead>
<tr>
<th></th>
<th>1st canonical variate</th>
<th>2nd canonical variate</th>
<th>3rd canonical variate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Correlation</td>
<td>Coeff.</td>
<td>Correlation</td>
</tr>
<tr>
<td>Aggression set</td>
<td>Physical aggression</td>
<td>.36</td>
<td>.01</td>
</tr>
<tr>
<td></td>
<td>Verbal aggression</td>
<td>.68</td>
<td>.24</td>
</tr>
<tr>
<td></td>
<td>Anger</td>
<td>.78</td>
<td>-.02</td>
</tr>
<tr>
<td></td>
<td>Hostility</td>
<td>.98</td>
<td>.86</td>
</tr>
<tr>
<td></td>
<td>Percent of variance</td>
<td>53.75%</td>
<td>26.37%</td>
</tr>
<tr>
<td></td>
<td>Redundancy</td>
<td>39.13%</td>
<td>14.4%</td>
</tr>
<tr>
<td>Interpersonal set</td>
<td>Domineering/Controlling</td>
<td>.94</td>
<td>.87</td>
</tr>
<tr>
<td></td>
<td>Vindictive/Self-Centred</td>
<td>.72</td>
<td>-.04</td>
</tr>
<tr>
<td></td>
<td>Cold/Distant</td>
<td>.48</td>
<td>-.13</td>
</tr>
<tr>
<td></td>
<td>Socially Inhibited</td>
<td>.5</td>
<td>.01</td>
</tr>
<tr>
<td></td>
<td>Non-assertive</td>
<td>.25</td>
<td>.02</td>
</tr>
<tr>
<td></td>
<td>Overly Accommodating</td>
<td>.02</td>
<td>-.01</td>
</tr>
<tr>
<td></td>
<td>Self-Sacrificing</td>
<td>.42</td>
<td>.1</td>
</tr>
<tr>
<td></td>
<td>Intrusive/Needy</td>
<td>.71</td>
<td>.31</td>
</tr>
<tr>
<td></td>
<td>Percent of variance</td>
<td>32.79%</td>
<td>28.39%</td>
</tr>
<tr>
<td></td>
<td>Redundancy</td>
<td>23.87%</td>
<td>15.5%</td>
</tr>
</tbody>
</table>

With a cut-off correlation of 0.3, all variables in the aggression set correlated with the first canonical variate. Among the interpersonal set, all variables apart from 'Non-assertive' and 'Overly Accommodating' correlated with the first canonical variate. The first pair of canonical variates indicate that high levels of hostility (.98), anger (.78),
verbal aggression (.68) and, to a lesser extent, physical aggression (.36) are associated with a high frequency of a variety of interpersonal problems, specifically being domineering (.94), vindictive (.72), intrusive (.71), socially inhibited (.5), cold (.48) and self-sacrificing (.42). The composition of this first canonical variate is similar to that of the non-offending volunteer sample. Of difference, is that the 'Socially Inhibited' and 'Intrusive/Needy' scales contribute strongly to this variate among the HM Prison sample. People who score high on the 'Socially Inhibited' scale are anxious, hypersensitive to negative evaluation, and find it hard to express their feelings towards others. People who score high on the 'Intrusive/Needy' scale are uncomfortable in situations in which they are not the centre of attention and find it difficult to spend time alone. Furthermore, they disclose personal information inappropriately. As with the non-offending volunteer sample, this first canonical variate would appear to describe aggression in the context of difficulties with appropriate expression of negative emotion.

The second canonical variate in the aggression set was composed of 'Physical aggression' and 'Verbal aggression', while the corresponding canonical variate from the interpersonal set was composed of 'Socially Inhibited', 'Non-assertive', 'Overly Accommodating', 'Self-Sacrificing' and 'Intrusive/Needy'. Taken as a pair, these variates suggest that physical (.89) and verbal (.5) aggression are associated with self-sacrificing (.78), non-assertive (.77), overly accommodating (.77), intrusive (.45) and socially inhibited (.43) interpersonal styles. Again, this replicates the second canonical variate of the non-offending volunteer sample, although a wider range of interpersonal problems are implicated in the use of physical and verbal aggression when anger and hostility are absent, specifically those implicated by the 'Self-Sacrificing' and 'Intrusive/Needy' scales. The contribution here of a high score on the 'Self-Sacrificing' scale to physical aggression is surprising, although may be explained in terms of the over-controlling of emotions typical of this interpersonal style, and the projection through physical or verbal aggression of negative emotions onto a person or object unrelated to that which the aggressor had previously protected. So, whilst the aggressive act could be considered to be emotionally mediated, this is unlikely to be so within the specific context of the act itself. The smaller contribution here of 'Intrusive/Needy' is not so surprising, given that people who score high on this scale strive to draw attention to themselves and experience difficulties with maintaining boundaries, both of which may lead to verbal aggression.
in the form of arguments, and potentially physical aggression, particularly within a confined context, such as a prison.

The third canonical variate in the aggression set comprised negative of 'Verbal aggression', while the corresponding canonical variate from the Interpersonal set was composed of 'Cold/Distant'. Taken as a pair, these variates suggest that the absence of verbal aggression (-.54) is associated with high levels of distance from others (.37), in that those who have minimal feelings for and little connection with others are unlikely to be verbally aggressive towards others. Rather than the description of assertiveness as opposed to verbal aggression, as described in the third canonical variate among the non-offending volunteer sample, the third canonical variate among the Prison sample would appear to suggest that if someone does not consider themselves to have any connection with those around them then displays of verbal aggression towards others would be unusual.

**7.6.2.1. Summary of canonical correlation analysis with HM Prison sample**

The first canonical variate described aggression (as indexed by the scales of the Aggression Questionnaire) in the context of difficulties with appropriate expression of negative emotion. The second canonical variate suggested that acts of physical and verbal aggression might not always be mediated by anger and hostility, but, within this prison sample, may result from displaced negative emotions, difficulties with maintaining boundaries within a confined environment and perceived or actual threat in conjunction with difficulties with assertiveness. The third canonical variate indicated that displays of verbal aggression towards others might be unusual among those who do not consider themselves to have any emotional attachment to those around them. These results will be discussed further in section 7.7.

**7.6.3. Canonical correlation analysis with Broadmoor sample**

One within-set multivariate outlier was identified and excluded from analysis (n=53). Assumptions regarding linearity and multicollinearity were met.

The first canonical correlation was .84 (70% overlapping variance); the second was .72 (51% overlapping variance); the third canonical correlation was .43 (19% overlapping variance). The fourth canonical correlation was .22 (5% overlapping variance). With all four canonical correlations included, $F_{(32)}=3.82$, $p<0.01$; with the
first canonical correlation removed, $F_{(21)}=2.31$, $p<0.01$; with the second canonical correlation removed, $F_{(12)}=7.08$, $p<0.01$; subsequent tests were not statistically significant. Therefore, the first two pairs of canonical variates accounted for the significant relationships between the two sets of variables.

Data on the first two pairs of canonical variates appear in Table 7.9. Shown in the table are correlations between the variables and the canonical variates, standardised canonical coefficients, within-set variance accounted for by the canonical variates (percent of variance), redundancies, and canonical correlations. Total percent of variance and total redundancy indicate that the first pair of canonical variates was strongly related and the second pair was moderately related.

Table 7.9: Correlations, standardised canonical coefficients, canonical correlations, percents of variance, and redundancies between aggression and interpersonal variables and their corresponding canonical variates for the Broadmoor sample

<table>
<thead>
<tr>
<th></th>
<th>1st canonical variate</th>
<th>2nd canonical variate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Correlation</td>
<td>Coefficient</td>
</tr>
<tr>
<td>Aggression set</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical aggression</td>
<td>.66</td>
<td>.01</td>
</tr>
<tr>
<td>Verbal aggression</td>
<td>.86</td>
<td>.04</td>
</tr>
<tr>
<td>Anger</td>
<td>.76</td>
<td>-.01</td>
</tr>
<tr>
<td>Hostility</td>
<td>.99</td>
<td>.11</td>
</tr>
<tr>
<td>Percent of variance</td>
<td>68.20%</td>
<td>14.77%</td>
</tr>
<tr>
<td>Redundancy</td>
<td>47.68%</td>
<td>7.54%</td>
</tr>
<tr>
<td>Interpersonal set</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domineering/Controlling</td>
<td>.82</td>
<td>.06</td>
</tr>
<tr>
<td>Vindictive/Self-Centred</td>
<td>.8</td>
<td>.04</td>
</tr>
<tr>
<td>Cold/Distant</td>
<td>.68</td>
<td>.03</td>
</tr>
<tr>
<td>Socially Inhibited</td>
<td>.43</td>
<td>-.07</td>
</tr>
<tr>
<td>Non-assertive</td>
<td>.42</td>
<td>-.01</td>
</tr>
<tr>
<td>Overly Accommodating</td>
<td>.36</td>
<td>-.02</td>
</tr>
<tr>
<td>Self-Sacrificing</td>
<td>.75</td>
<td>.07</td>
</tr>
<tr>
<td>Intrusive/Needy</td>
<td>.74</td>
<td>.05</td>
</tr>
<tr>
<td>Percent of variance</td>
<td>41.98%</td>
<td>18%</td>
</tr>
<tr>
<td>Redundancy</td>
<td>29.35%</td>
<td>9.19%</td>
</tr>
<tr>
<td>Canonical correlation</td>
<td>.84</td>
<td>.72</td>
</tr>
</tbody>
</table>

Due to the small sample size, a more conservative cut-off correlation of 0.5 was applied. All variables in the aggression set and five variables in the interpersonal set correlated with the first canonical variate. The first pair of canonical variates indicates that high levels of hostility (.99), verbal aggression (.86), anger (.76) and physical aggression (.66) are associated with domineering (.82), vindictive (.8), self-sacrificing
(0.75), intrusive (0.74), and cold/distant (0.68) interpersonal styles. The composition of this first canonical variate is most similar to that of the HM Prison sample, and not completely dissimilar to that of the non-offending volunteer sample. As such, this first canonical variate would appear to describe aggression in the context of difficulties with appropriate expression of negative emotion.

The second canonical variate in the aggression set was composed of negative of 'Physical aggression', while the corresponding canonical variate from the interpersonal set was composed of negative of 'Cold/Distant', negative of 'Socially Inhibited', negative of 'Non-assertive', negative of 'Overly Accommodating' and negative of 'Intrusive/Needy'. Taken as a pair, the second canonical variate indicates that low levels of physical aggression (-0.72) are associated with a lack of self-reported problems on the 'Socially Inhibited' (-0.72) and 'Overly Accommodating' (-0.57) scales. This second canonical variate would appear to be most similar to the second canonical variate among the non-offending volunteer sample. There is a strong contribution of 'Physical aggression' within this canonical variate. This suggests that those who are hypersensitive to negative evaluations from others, experience difficulty communicating their thoughts and feelings to others, and have difficulty expressing disagreement with others may also use physical aggression as a method of resolving these communication difficulties.

7.6.4. Summary of canonical correlation analyses
The first and second canonical variates of the non-offending volunteer sample analysis were replicated in the HM Prison sample analysis and, to a lesser extent, among the Broadmoor sample. However, a wider range of interpersonal problems were associated with aggressive behaviour among the HM Prison sample. The third non-offending volunteer sample canonical variate was not replicated in either of the two forensic samples; interpretation of the third canonical variate in the HM Prison sample was questionable. These results will be discussed further in section 7.7.

7.7. Discussion
The present chapter aimed to examine the relationship between aggression, as indexed by a self-report psychometric test, and interpersonal style. Furthermore, this chapter also aimed to examine differences in self-reported aggression between the non-offending volunteer, HM Prison and Broadmoor samples, and explore the extent to which aggression is related to measures of agency, communion, and specific
individual difference factors. The results of the analyses presented in this chapter are discussed in the following sections, with reference to these specific aims.

7.7.1. Differences in self-reported aggression between the non-offending volunteer, HM Prison and Broadmoor samples

The HM Prison and Broadmoor samples scored significantly higher than the non-offending volunteer sample on the 'Physical aggression' and 'Hostility' scales of the Aggression Questionnaire (AQ; Buss and Warren, 2000). The 'Physical aggression' scale focuses on the use of physical force when expressing anger or aggression, with a high score indicating a lack of ability to control urges toward physical aggression. As there was no significant difference found between the non-offending volunteer and two forensic samples on the 'Anger' scale, the difference found here on the 'Physical aggression' scale would suggest that the Broadmoor patients and HM prisoners more readily use physical force in the expression of aggression, and may be unable to generate alternative ways of coping with their experience of anger.

The 'Hostility' scale of the AQ is the one most closely associated with pervasive social maladjustment, as well as severe psychopathology. A high score indicates affective disturbance and social isolation among people who generate internalised reactions to perceived assaults on their well-being by others, and habitually appraise the actions of others in a hostile manner. Section 3.2.4. of Chapter 3 discussed the role of an individual's habitual tendency to interpret ambiguous stimuli as hostile or aggressive in the commission of aggressive and violent behaviour. Specifically, a hostile attributional bias may not only influence the routes to aggressive and violent behaviour, but may also reduce the mediating effects of cognitive and affective appraisal, resulting in the disinhibition of aggressive responses (Lindsay and Anderson, 2000). The co-occurrence here of significantly higher scores on the 'Hostility' and 'Physical aggression' scales among both of the forensic samples lends support to this. The significant difference between the HM Prison and Broadmoor samples on this measure of hostility may reflect the experience of having been engaged in therapeutic work, as the Broadmoor sample scored significantly lower than their HM Prison counterparts. An alternative explanation for this difference is generated from the work of Blackburn (1998a), who found evidence to suggest that persistent lawbreaking by some offenders represented attempts to master a social environment perceived as hostile and threatening. Furthermore, Blackburn hypothesised that frequent criminal behaviour may represent an ongoing attempt to control and dominate others – often in a hostile manner – in the social environment.
which they perceive as hostile. Therefore, the differences between the HM Prison and Broadmoor samples here may be reflective of differences in offending history and diversity of criminal behaviour.

The characteristics of an individual with a high score on the 'Hostility' scale of the AQ are suggestive of an association with the 'Vindictive/Self-Centred' and 'Cold/Distant' scales of the Inventory of Interpersonal Problems – Circumplex Scales, (Horowitz et al., 2000). High scores on these scales are typical of people who attribute hostility to the intentions of others and experience a lack of concern for and attachment with others. Interestingly, both samples of offenders scored significantly higher than the non-offending volunteers on the 'Vindictive/Self-centred' and 'Cold/Distant' scales (see section 6.4 of Chapter 6). As such, we could hypothesise that, when plotted in interpersonal theoretical space, 'Physical aggression' and 'Hostility' would be located in the areas of 'Vindictive/Self-Centred' and 'Cold/Distant'.

7.7.2. Aggression as related to measures of agency, communion, and specific individual difference factors

The General Perceived Self-Efficacy questionnaire (GSE; Schwarzer and Jerusalem, 1995) and the 'Social estrangement' scale of the Psychological Estrangement questionnaire (PSE; Hammond, 1980) were adopted to reflect agency and communion (respectively) within the Interpersonal Circumplex. In addition, the 'Existential estrangement' scale of the PSE and two scales of the Interpersonal Reactivity Index (IRI; Davis, 1980) were used to further explore individual difference factors in relation to aggressive and violent behaviour. The results of each of these will be discussed in turn.

7.7.2.1. Self-efficacy

The relationship between aggression and agency was assessed through general self-efficacy. Among the non-offending volunteer and HM Prison samples, increasing scores on the 'Hostility' and 'Anger' scales were associated with low self-efficacy scores. This indicates that those who reported that they typically attribute hostility to others' intentions and experience high levels of anger also do not have a sense of personal control.

These results lend support to the assertion that people with a high sense of perceived self-efficacy tend to interpret demands and problems more as challenges than as
threats, whereas individuals who are characterised by low perceived self-efficacy are prone to anxiety arousal, threat appraisals of events and perceptions of coping deficiencies when confronted with difficult situations and demands (Jerusalem and Mittag, 1995). The relationship here between hostility and self-efficacy indicates that low self-efficacy increases the likelihood that challenges in life will be perceived as threats (Lips-Wierma, 2000). Furthermore, the relationship between 'Physical aggression' and self-efficacy among the HM Prison sample indicates that, for some people, low self-efficacy and the perception of threat do indeed increase an aggressive response, in accordance with the principles of negative reinforcement.

In section 6.6.1. of Chapter 6, the 'Nonassertive' scale of the Inventory of Interpersonal Problems-Circumplex Scales (Horowitz et al., 2000) significantly predicted self-efficacy, with high non-assertiveness associated with poor self-efficacy. On this basis, it would not be unreasonable to expect that people who experience high levels of non-assertiveness also experience high levels of hostility and anger. In addition, the negative association of 'Physical aggression' and self-efficacy among the HM Prison sample suggests that high levels of non-assertiveness might also be related to the use of physical aggression among this sample. This is interesting, as it suggests that aggressive behaviour might not be located within just one specific area of the Interpersonal Circumplex.

7.7.2.2. Psychological estrangement
The relationship between aggression and communion with others was assessed through the 'Social estrangement' scale. The relationship between 'Existential estrangement' (a specific individual difference factor) and aggression was also assessed. Each of these will be discussed in turn.

7.7.2.2.1. Existential estrangement
The experience of being psychologically distant from the self and confused about the state of the world around was associated with all forms of aggression. The extent to which this experience might affect cognitive and emotional processes in interpersonal interactions is unclear, and could be explored in more detail in future research. Of interest in the present findings, is that the 'Hostility' scale was most strongly associated with existential estrangement. As was discussed in section 7.7.1., this scale is most closely associated with pervasive social maladjustment, and includes the attribution of hostility to others' intentions and paranoia. Therefore, the
relationship found here between the experience of existential estrangement and an individual’s hostility-related cognitions and behaviours makes psychological sense, in terms of someone being confused about the world around them, which they may perceive as being inconsistent, and also perceiving others’ intentions as hostile. An understanding of this relationship helps to explain those between ‘Existential estrangement’ and other forms of aggression, as measured by the Aggression Questionnaire scales.

The experience of anger was the second strongest association with existential estrangement, after hostility, among the non-offending volunteer and HM Prison samples. It is plausible that the experience of the combination of existential estrangement, the perception of hostility in others’ intentions, and paranoia might make an individual angry, as an expression of both the apparently perpetuating confusion of the world around them and of the perceived injustice of others. Of interest is that, among the HM Prison sample, ‘Anger’ and ‘Physical aggression’ were both associated to a similar degree to the experience of existential estrangement. This might suggest that this sample of offenders react angrily with the use of physical aggression to the experience of existential confusion and paranoia. In addition, existential estrangement was similarly associated with ‘Anger’, ‘Hostility’ and ‘Physical aggression’ together, among the Broadmoor sample. This might indicate a higher level of poor self-management and coping skills to deal with the experience of being psychologically distant from the self. ‘Verbal aggression’ also correlated with existential estrangement among this sample, although less so than the other aggression scales. The extent to which these associations might be due to psychological estrangement related to mental disorder among this group of offenders was not possible to explore within the present study, although would be interesting to investigate in future research.

7.7.2.2.2. Social estrangement
The perception of feeling socially alienated from others was related to all forms of aggressive behaviour. As with ‘Existential estrangement’, social estrangement was most strongly associated with ‘Hostility’. This relationship is particularly interesting, as this suggests that an individual with high scores on both the ‘Social estrangement’ and ‘Hostility’ scales is not well able to take into account the needs and feelings of others. This is relevant to developmental perspectives in understanding aggressive and violent behaviour, specifically with regard to the experience of (non-delinquent)
peer rejection and childhood abuse, both of which can lead to the perception of alienation from society (e.g. Cairns and Cairns, 1991) and difficulties with forming secure attachments with others (e.g. Meloy and Gacono, 1998). This approach to understanding violent behaviour is further supported by the association between social estrangement and the use of physical aggression among the HM Prison and Broadmoor samples. Within the remit of the present study, it was not possible to explore the extent to which physical aggression might be a cause or effect of social estrangement but, nonetheless, it is interesting that this was associated with social estrangement amongst both groups of offenders. Furthermore, 'Hostility', 'Physical aggression' and 'Anger' were associated to similar degrees to 'Social estrangement' among the Broadmoor sample. Again, the extent to which this might be a cause or effect of mental disorder, and associated stigmatisation, is unclear from the present findings, but may warrant further research.

Among the HM Prison and Broadmoor samples, 'Anger' was also associated with 'Social estrangement', to a similar extent as 'Hostility'. This relationship (with anger) was also present among the non-offending volunteer sample, but was not as strong as that between 'Hostility' and 'Social estrangement'. This finding among the HM Prison and Broadmoor samples is indicative of the experience of anger in conjunction with hostility among offenders who feel socially alienated. This is interesting as it is indicative of trait anger among violent offenders who experience social isolation, and suggests that the high levels of verbally-reported anger among violent offenders might not be simply due to the 'over-labelling' of this emotion, as suggested by Polaschek and Reynolds (2001). In particular, the measurement of anger on this scale referenced anger-related words just twice across the seven items of this scale. As such, the relationship between self-reported anger and social estrangement would appear to be a valid one among offenders who experience this form of psychological estrangement, rather than the over-representation of this emotion within the emotion-response repertoire of violent offenders.

Following analyses in section 6.6.2. of Chapter 6, 'Social estrangement' was considered to be a good measure of (lack of) communion with others, relative to the Interpersonal Circumplex. As such, it could be expected that hostility, in particular, also would be associated with high scores on the 'Vindictive/Self-centred' and 'Socially Inhibited' scales of the Inventory of Interpersonal Problems-Circumplex Scales (Horowitz et al., 2000). Furthermore, it could be anticipated that anger and
self-reported physical aggression among the two forensic samples, and anger and verbal aggression among the non-offending volunteer sample, would also be associated with these two interpersonal scales. Finally, it could be anticipated that there would be little association of aggression with the 'Self-sacrificing' scale, given that this scale reflected positive communion (non-social estrangement) with others. This will be discussed further in section 7.2.3.

7.7.2.3. Empathic ability
The relationship between empathic ability and aggression was explored in relation to perspective taking ability and empathic concern. A range of associations between 'Perspective taking' and aggression were found, although just one relationship between 'Empathic concern' and 'Hostility' was found among the non-offending volunteer sample. The relationship between aggression and perspective taking ability will be discussed in the following section.

In a self-report study of North American university students, Richardson et al. (1994) found that the Interpersonal Reactivity Index (IRI; Davis, 1980) measure of perspective taking ability was negatively correlated with more measures of aggressive tendency (e.g. verbal aggression, irritability, assault) than the IRI measure of empathic concern. The findings of the present study support those of Richardson et al. (1994). As such, it would appear that aggression has little association with one's ability to feel compassion and concern for others having negative experiences. One explanation for this is that the function of interpersonally aggressive or violent behaviour out-weighs victim feedback. This is not consistent with Baron's experimental work (e.g. 1971a; 1971b; Baron and Richardson, 1994), which found that victim feedback helped to reduce aggression, although the extent to which experimentally-manipulated conditions of empathy effect aggressive behaviour is questionable. Miller and Eisenberg (1988) suggested that questionnaire measures of empathic ability were probably a more accurate reflection of any relationship with aggression. The present findings lend more support to the cognitive empathic mediation of aggression, rather than the affective.

7.7.2.3.1. Perspective taking
The ability to adopt the perspective of another was negatively correlated with self-reported anger, hostility, and physical aggression among the non-offending volunteer and HM Prison samples. As such, individuals who experience high levels of anger,
hostility, and are physically aggressive, also find it difficult to appreciate the perspective of another. The relationship between anger and empathic ability was highlighted in work by Pithers (1999), who found that negative emotional states, such as anger, may actually impair usual empathic skills. Furthermore, Averill (1993) and Polascheck and Reynolds (2001) suggested that offenders may find justification in their use of violence through invoking anger in the antecedents to the behaviour, which may lead to the misattribution of the intentions of others as malevolent (Ferguson and Rule, 1983) and, as a consequence, fail to accurately process the emotional state of the victim. The present results of the relationship between 'Perspective taking' and aggression variables lend support to these hypotheses, such that the experience of anger, associated attribution of hostility to others' intentions, and the use of physical aggression, is related to poor perspective taking ability among the non-offending volunteer and HM Prison samples.

In section 6.6.3. of Chapter 6, 'Perspective taking' was also predicted by the 'Domineering/Controlling' and 'Socially Inhibited' scales of the Inventory of Interpersonal Problems-Circumplex Scales (IIP-C; Horowitz et al., 2000), and was correlated with the 'Vindictive/Self-centred' scale. As such, it would be expected that high levels of anger, hostility, and physical aggression would also be associated with these areas of the non-offending volunteer and HM Prison sample interpersonal space. This will be discussed further in section 7.2.3..

The lack of relationships between perspective taking ability and aggression among the Broadmoor sample was interesting, as this may be indicative of a higher level of cognitive impairment among this sample of mentally disordered offenders. An alternative explanation would be that there are some people within this sample who have poor perspective taking skills and who are also aggressive, as was described among the non-offending volunteer and HM Prison samples. Equally, there may be some patients within this sample who have good perspective taking skills, but who are also aggressive. Whilst it was not within the remit of this study to investigate perspective taking ability relative to potentially sadistic aggressive behaviour, the possibility of such an association can not be discounted. Once again, this highlights the complexity of aggressive and violent behaviour, and reiterates that there are a variety of motivations and functions for the use of such behaviour. This emphasises the need to focus future work on the motivations and functions of aggressive and violent behaviour.
7.7.3. The relationship between aggression and interpersonal style

Previous research located aggressive and violent behaviour in the 'Domineering/Controlling' – 'Cold/Distant' quadrant of the Interpersonal Circumplex (Anderson, 2002; Blackburn, 1998a), although had not previously employed self-report measures of both interpersonal style and aggression. The results presented in this chapter lend some support to this hypothesised location, with the use of the Aggression Questionnaire (AQ; Buss and Warren, 2000) and the Inventory of Interpersonal Problems-Circumplex Scales (IIP-C; Horowitz et al., 2000), across the three non-offending volunteer, HM Prison and Broadmoor samples.

It has been possible to hypothesise as to the location of aggression variables, relative to interpersonal variables. The relationship between self-efficacy, interpersonal style and aggression indicated that 'Hostility', 'Anger' and 'Physical aggression' (for the HM Prison sample) might be located close to the 'Nonassertive' scale. Through association with social estrangement, it was predicted that 'Hostility' and 'Anger' would be located close to the 'Vindictive/Self-centred' and 'Socially Inhibited' scales. Furthermore, non-offending volunteer sample analyses of 'Perspective taking' indicated that 'Anger' and 'Hostility' might be located close to the 'Domineering/Controlling', 'Socially Inhibited', and 'Vindictive/Self-centred' scales. Among the HM Prison sample, 'Physical aggression', 'Anger', and 'Hostility' would be located close to the 'Vindictive/Self-centred' scale. To summarise, it was hypothesised that the aggression variables would be located in the left-hand side of the circumplex, ranging from 'Domineering/Controlling' to 'Nonassertive', to the exclusion of the 'Cold/Distant' scale.

When plotted in relative interpersonal space, 'Verbal aggression', 'Physical aggression', 'Anger', and 'Hostility' all occupied similar relative space within the Interpersonal Circumplex. This is despite the differences in sample size, sample characteristics and circumplex structure. Therefore, these analyses appeared to reflect a representative location of aggression within interpersonal space, which is generally consistent across samples.

The location of aggression in two-dimensional space relative to the interpersonal variables produced varied results, although did support the location of aggression in the 'Domineering/Controlling' – 'Cold/Distant' area of the Interpersonal Circumplex.
However, the results of the Smallest Space Analyses (SSAs) indicated less stability of the relative location of these variables across samples. One benefit of the SSA approach to exploring the location of aggression in interpersonal space is that each of the variables are located relative to each other and, as such, strength of association between specific interpersonal and aggression variables can be identified relative to other variables.

Among the non-offending volunteer and HM Prison sample SSAs, the location of 'Anger' suggested that it may mediate 'Physical-' and 'Verbal aggression', lending support to Novaco and Renwick's (1998) proposition that anger is a significant activator of aggression, which is otherwise regulated by inhibitory controls. In addition, 'Hostility' was most conceptually linked to the 'Vindictive/Self-centred' scale, which also incorporates elements of hostile attributional bias into its characteristic style of interacting with others. Across the three samples, the aggression variables fell between the 'Domineering/Controlling' and 'Vindictive/Self-centred' scales, with the exception of 'Hostility' which was located between the 'Vindictive/Self-centred' and 'Cold/Distant' scales. In addition, the spatial distance between the 'Domineering/Controlling' and 'Intrusive/Needy' variables among the HM Prison and Broadmoor samples, in particular, suggested that the aggression variables have a stronger association with the 'Domineering/Controlling' – 'Cold/Distant' quadrant than the 'Domineering/Controlling' – 'Self-sacrificing' quadrant. Together, this suggests that the location of self-reported aggression in interpersonal space is the same as that found in relation to offending history (Anderson, 2002; Blackburn, 1998a). This is interesting, as it suggests that 1) the self-report methodology is useful among samples of offenders, and 2) that trait aggression, as indexed by the Aggression Questionnaire, and state violence, as indexed by offending history, are associated with the same interpersonal styles. This might be indicative of a relationship between state and trait aggressive and violent behaviour.

Results of the correlations between aggression, agency and communion, suggested that aggression might be associated with high scores on the 'Nonassertive', 'Vindictive/Self-centred' and 'Socially Inhibited' scales. This was indicative of a more complex relationship between aggression and interpersonal style which had not been accounted for by locating the variables either in relative interpersonal space, or in relation to interpersonal variables.
The results of the canonical correlation analyses indicate that the relationship between aggression and interpersonal style is more complicated than has been previously demonstrated. Furthermore, the results of these analyses would appear to more adequately reflect the cognitive, affective, and motivational aspects of aggressive behaviour. In particular, aggressive behaviour appeared to be related to 1) difficulties with the expression of negative emotion, and 2) difficulties with assertiveness and general communication of wants and needs, specifically in relation to perceived or actual threat to the self. Furthermore, these analyses indicated that aggressive behaviour can occur independently of the experience and expression of aggression. Consistent with hypotheses generated from previous analyses in this chapter, aggression was related to interpersonal styles other than in the 'Domineering/Controlling' – 'Cold-Distant' quadrant.

The findings of these analyses are important to both 1) their contribution to the theoretical understanding of aggressive and violent behaviour, and 2) informing treatment needs of violent offenders. The replication of these two principal themes of the inter-relationship between aggressive behaviour and interpersonal style across all three samples indicates that these are relatively stable models of these dependence relationships. Therefore, these models could be considered in relation to the treatment and management of aggressive behaviour across a variety of settings and client groups.

It is interesting that both models are related to difficulties with interpersonal communication. Prevalence figures of communication problems in the general UK population have been estimated at 2% (Enderby and Philipp, 1986). However, this rate is much higher among offending populations. Johnson (1994) reported this figure at 11% among a cohort of young offenders who had difficulties in relation to verbal fluency, articulation, and social communication. In particular, this last difficulty was thought to lead to a reduction in communication ability, associated with difficulty in interpreting and processing verbal and non-verbal information appropriately across interpersonal situations (Bryan and Forshaw, 2001). In another study, the prevalence of expressive language deficits among young offenders was much higher, at 63% (Pryor, 1998). Higher still was the incidence of communication problems among an admission cohort at a high security hospital, in which Bryan (1998) found that 75% of all patients showed language and communication problems that would affect interpersonal functioning and which would need to be considered in verbally
mediated interventions. The prevalence of communication difficulties among groups of people who have committed offences is remarkable. Despite the variation in prevalence figures, the evidence for a relationship between communication difficulties, interpersonal problems, and aggressive or violent behaviour is compelling. The present findings contribute towards an understanding of this relationship within an interpersonal theoretical framework, by implicating the use of aggressive and violent behaviour as serving a communicative function among people who endorse a range of interpersonal problems, including the coercion of others, the over-protection of others, and difficulties with 'making oneself heard' among others. Therefore, this would suggest that, people who present differently in interpersonal situations and have apparently differing motivations for the use of aggressive and violent behaviour share a common functionality of communication through aggression. The benefit of this association with the interpersonal framework is that an individual's interpersonal style can inform motivation for such behaviour and more directly identify interpersonal treatment needs. Furthermore, the present findings lend some support to the utility of the Interpersonal Circumplex in understanding aggressive and violent behaviour.

Certainly, there are differences in the use and function of interpersonally aggressive and violent behaviour across individuals. Moreover, the reasons why people use these forms of behaviour may be more evident for some people than among others. However, the findings of the present chapter indicate that it would be prudent to consider the communicated interpersonal message in the use of aggressive and violent behaviour, in addition to other motivations.

7.7.4. Summary
This chapter examined differences in self-reported aggression between a sample of non-offenders and two samples of violent offenders. Differences were found not only between the offenders and non-offenders, but also between the two samples of violent offenders. Such differences might be reflective of differences in offending history and diversity of criminality, and warrant further exploration.

Evidence was found in support of previous research linking poor self-efficacy and perspective taking ability to self-reported aggression. Clear treatment needs were highlighted in relation to hostile attribution bias and poor perspective taking ability among perpetrators of aggressive and violent behaviour, in particular. Furthermore, the relationship between psychological estrangement and aggression was interesting,
as this suggested that psychological states associated with mental disorder might be related to aggressive and violent behaviour. Informed by the findings of previous analyses, these results suggested together that it was too simplistic to think of aggression as being located within one area of the Interpersonal Circumplex.

Finally, the relationship between aggression and interpersonal style was explored. The spatial location supported the hypothesised location generated from the findings of previous research. However, exploration of the inter-relationship of aggression and interpersonal style indicated that aggressive behaviour is, indeed, related to areas of the Interpersonal Circumplex other than the 'Domineering/Controlling' – 'Cold/Distant' scale. Interpretation of these relationships resulted in the presentation of two models of aggressive behaviour as being related to 1) difficulties with the appropriate expression of negative emotion, and 2) difficulties with assertiveness and general communication of needs, in relation to the experience of the perception of threat to the self. Furthermore, these would appear to be relatively stable models of the use of aggressive and violent behaviour as serving a communicative function. The principal findings and implications from the present study are as follows:

- The exploration of the dependence relationship between aggression and interpersonal style contributed to the theoretical knowledge base of aggressive and violent behaviour. The use of interpersonally aggressive and violent behaviour would appear to serve a communicative function. Furthermore, an understanding of an individual's interpersonal style can inform motivations for the use of aggressive and violent behaviour within the interpersonal theoretical framework. This highlights treatment targets to address individual motivation for and function of the use of interpersonally aggressive and violent behaviour.

- Violent offenders reported differences in the salience and forms of aggressive behaviour, not just from non-offenders, but also from each other. This suggests that the two samples of offenders in the present study might have different needs in relation to the treatment of violent offending behaviour. This warrants further exploration.
CHAPTER 8

Interpersonal style amongst groups of violent offenders

8.1. Aims and overview of the chapter
This chapter aims to examine differences in interpersonal style between different groups of violent offenders, explore the relationship between different patterns of interpersonally violent offences and interpersonal style, and assess the extent to which interpersonal style can discriminate between people with different violent offending histories. Furthermore, this chapter aims to explore the relationship between self-reported aggressive behaviour and historical indices of violence, in addition to the extent to which aggressive and violent behaviour is motivated by concerns about agency and communion.

The background to the present study will be presented first. This will be followed by analyses to address the first set of aims relating to interpersonal style, beginning with the generation of offence-related groups for each of the HM Prison and Broadmoor samples. Thereafter, analyses will first explore differences between groups on measures of agency, communion, and specific individual difference factors, before exploring the relationship between offending behaviour and self-reported aggression.

8.2. Background to the present study
Previous research has identified differences in interpersonal style between groups of offenders. As discussed in detail in section 3.5.8. of Chapter 3, Blackburn (1998a) found that mentally disordered offenders with high rates of convictions for a range of offences were characterised by greater interpersonal dominance. As such, he proposed that general criminality was associated with the ‘Domineering/Controlling’ – ‘Cold/Distant’ quadrant of the Interpersonal Circumplex. Within the same study, violence (as indexed by convictions) was located within the ‘Domineering/Controlling’ – ‘Self-sacrificing’ quadrant of the Interpersonal Circumplex, and Blackburn (1998a) suggested that this may be indicative of some degree of offence specialisation. However, the extent to which the location of violence within that study was complicated by motivational factors associated with other offences (e.g. sexual offences, fire-setting) or non-interpersonal violence is unclear. Therefore, this chapter will explore the relationship between specific offences and interpersonal style.
Anderson (2002) classified sex offenders and non-sex offenders into groups – based on criminal history – and explored group differences in interpersonal style. Results indicated that there were differences between sex offenders and non-sex offenders, but also that sex offenders were heterogeneous in terms of interpersonal style, as demonstrated by differing styles between offence-related groups. Anderson (2002) reported that the violent offenders scored high on the arrogant-calculating (‘Vindictive/Self-centred’), assured-dominant (‘Domineering/Controlling’), cold-hearted (‘Cold/Distant’) and aloof-introverted (‘Socially Inhibited’) scales, describing this interpersonal style as ‘cold-hearted’ and located primarily in the ‘Domineering/Controlling’ – ‘Cold/Distant’ quadrant of the Interpersonal Circumplex. This thesis has already presented evidence in support of two samples of interpersonally violent offenders having interpersonal profiles characterised more by the ‘Domineering/Controlling’ – ‘Cold/Distant’ – ‘Nonassertive’ side of the Interpersonal Circumplex than the other, more nurturant, side (Chapter 6). However, differences between the two samples (HM Prison and Broadmoor) of interpersonally violent offenders suggest that there may also be differences in interpersonal style between those who have used differing levels of interpersonal violence. Therefore, the extent to which characteristic interpersonal style can discriminate between people with differing violent offending histories will be investigated in this chapter.

In Chapter 7 of this thesis, trait aggressiveness (as indexed by the Aggression Questionnaire) was found to be most strongly associated with the ‘Domineering/Controlling’ – ‘Cold/Distant’ area of the circumplex, although differences between the HM Prison and Broadmoor samples were found, specifically in relation to ‘Hostility’. It is anticipated that there will also be differences between groups of offenders who have historically used differing levels of interpersonal violence, in relation to self-reported aggression. Specific components of aggression which were identified in Chapter 3 as being relatively stable individual characteristics were hostility and anger. However, the extent to which these are related to historical violent behaviour is unclear. Therefore, the relationship between current (self-reported aggression) and historical (offence history) indices of interpersonal violence will be explored. It is anticipated that this will facilitate exploration of the relationship between trait aggressiveness and state violence.

It is anticipated that those offenders with extensive histories of the use of violent behaviour will be characterised by a lack of communion with others and high agency.
Analyses of the effectiveness of a range of measures of agency and communion were performed in Chapter 6, and it was concluded that General Perceived Self-Efficacy (Schwarzer and Jerusalem, 1995) and the 'Social estrangement' scale of the Psychological Estrangement questionnaire (Hammond, 1988) most adequately reflected the organising principles of agency and communion, respectively. Other measures of agency and communion included 'Existential estrangement' (Hammond, 1988) and empathic ability (the 'Perspective taking' and 'Empathic concern' scales of the Interpersonal Reactivity Index; Davis, 1980). These scales were identified for inclusion in this thesis due to their relevance to the research literature on individual difference factors in aggression and violence. Whilst not good measures of agency and communion, these scales will be included in this chapter in order to explore these specific individual difference factors in relation to offending history.

8.3. Exploring the interpersonal styles of violent offenders

In order to explore whether specific interpersonal styles are more strongly associated with some sub-groups of violent offenders than others, offence-specific groups were first generated among both the HM Prison and Broadmoor samples. Offence history was compiled from individual case files among Broadmoor patients and from the completion of a self-report demographic sheet (see appendix 17) among the HM Prison sample. Offences were recorded as either of the following: traffic/motoring offences, acquisitive offences, offences involving criminal damage or property, arson, fraud, possession of drugs, possession of a weapon, sexual offences, offences against the person I (e.g. actual bodily harm, assault), offences against the person II (e.g. grievous bodily harm, wounding), offences against the person III (e.g. murder, manslaughter). Hereafter, actual bodily harm will be referred to as 'ABH' and grievous bodily harm as 'GBH'. As participants with a history of sexual or fire-setting offences were excluded from analyses in this thesis, the remaining nine offence categories only will be employed in this chapter.

8.3.1. Generation of offence-specific groups

In order to begin to place participants from the Broadmoor and HM Prison samples into offence-related groups, a series of correlations were carried out between offence categories, so as to explore the frequency of the co-occurrence of offences.
8.3.1.1. Correlations between offence categories – HM Prison sample

All participants completed a checklist of categories of offences for which they had received convictions. A matrix of phi correlations (Monte Carlo method) between the 9 categories for the HM Prison sample (n=126) is presented in Table 8.1.

Table 8.1: Phi correlations between offence categories for the HM Prison sample

<table>
<thead>
<tr>
<th></th>
<th>Traffic</th>
<th>Fraud</th>
<th>Drugs</th>
<th>Damage</th>
<th>Acquisit.</th>
<th>Weapon</th>
<th>ABH</th>
<th>GBH</th>
<th>Murder</th>
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<td>.202*</td>
<td>.418**</td>
<td>.209*</td>
<td>.055</td>
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<tr>
<td>Drugs</td>
<td>.205*</td>
<td>.144</td>
<td>1</td>
<td>.202*</td>
<td>.254**</td>
<td>.106</td>
<td>.338**</td>
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<td>Damage</td>
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<td>.378**</td>
<td>.382**</td>
<td>.382**</td>
<td>.136</td>
</tr>
<tr>
<td>Acquisit.</td>
<td>.418**</td>
<td>.278**</td>
<td>.176</td>
<td>.378**</td>
<td>1</td>
<td>.401**</td>
<td>.383**</td>
<td>.383**</td>
<td>.312**</td>
</tr>
<tr>
<td>Weapon</td>
<td>.225*</td>
<td>.201*</td>
<td>.106</td>
<td>.364**</td>
<td>.382**</td>
<td>1</td>
<td>.142</td>
<td>.235**</td>
<td>.045</td>
</tr>
<tr>
<td>ABH</td>
<td>.209*</td>
<td>.055</td>
<td>.107</td>
<td>.382**</td>
<td>.383**</td>
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<td>1</td>
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<td>.136</td>
<td>.312**</td>
<td>.142</td>
<td>.235**</td>
<td>.383**</td>
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<tr>
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<td>-.383**</td>
<td>-.045</td>
<td>-.059</td>
<td>1</td>
</tr>
</tbody>
</table>

* significant at the .05 level; ** significant at the .01 level

Traffic: traffic/motoring-related offences, including taking and driving away, dangerous driving
Fraud: including deception, imitating another
Drugs: including possession of, dealing drugs
Damage: criminal damage
Acquis: acquisitive offences, including larceny, theft, robbery
Weapon: including possession of, threatening with weapon, imitation firearm
ABH: up to ABH-level interpersonal violence, including affray, assault
GBH: up to GBH-level interpersonal violence, including wounding
Murder: including manslaughter, attempted murder/manslaughter

Prisoners with convictions for ABH-level interpersonal violence were likely to have received convictions for traffic or motoring offences, criminal damage, acquisitive offences and possession of a weapon. The 'acquisitive' category included the offence of robbery, which, by definition, includes the use of a weapon. The correlation here between ABH-level and GBH-level interpersonal violence and the latter's correlation with criminal damage and possession of a weapon, is suggestive of an escalation from what may be general criminality associated with ABH-level interpersonal violence, to a more consistent use of interpersonal violence of a more serious nature. The lack of correlation between murder/manslaughter and other levels of interpersonal violence suggests that this may be an offence so distinct as to warrant being treated as such; this is reinforced by the negative correlation between this offence and fraud and possession of drugs, two categories that appear to be associated with general criminality in this sample. The relationships between offence categories are modelled in Figure 8.1.
The significant inter-correlations between the non-interpersonal offences (e.g. fraud, criminal damage, possession of drugs, traffic offences) indicate that general criminality, as indexed by such offence categories, may be treated as distinct from interpersonally violent offences. Therefore, the correlations between offence categories among this sample of HM prisoners indicates that a minimum of four groups be generated from this sample: 1) prisoners with a history of non-interpersonal offences, 2) prisoners with non-interpersonal and ABH-level offences, 3) prisoners with non-interpersonal, ABH-level and GBH-level offences, 4) prisoners who have received a conviction for murder or manslaughter. In practice, 5 offence-related groups were generated: 1) non-interpersonal offences, 2) non-interpersonal and ABH-level offences, 3) non-interpersonal, ABH- and GBH-level offences, 4) all offences, and 5) murder/manslaughter (and non-interpersonal offences). The additional group of 'All offences' was created because this included the offence of murder or manslaughter, and it was considered prudent to distinguish this group of people with this offence profile from those in the 'Non-interpersonal, ABH- and GBH-level' group, on the basis of the findings of the inter-correlations between offence categories.

8.3.1.2. Correlations between offence categories – Broadmoor sample

For all participants in the Broadmoor sample (n=56), offence history was collated from individual case files, based on documented convictions. A matrix of phi correlations (Monte Carlo method) between the 9 categories for the Broadmoor sample is presented in Table 8.2.
Table 8.2: Phi correlations between offence categories for the Broadmoor sample

<table>
<thead>
<tr>
<th></th>
<th>Traffic</th>
<th>Fraud</th>
<th>Drugs</th>
<th>Damage</th>
<th>Acquisitive</th>
<th>Weapon</th>
<th>ABH</th>
<th>GBH</th>
<th>Murder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fraud</td>
<td>.022</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drugs</td>
<td>.024</td>
<td>.046</td>
<td>1</td>
<td>.125</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Damage</td>
<td>-.053</td>
<td>.017</td>
<td>-.125</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acquisitive</td>
<td>.304*</td>
<td>.179</td>
<td>.145</td>
<td>.029</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weapon</td>
<td>.118</td>
<td>.182</td>
<td>.388**</td>
<td>.134</td>
<td>.265</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABH</td>
<td>.283</td>
<td>.045</td>
<td>.204</td>
<td>.245</td>
<td>.329*</td>
<td>.454**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GBH</td>
<td>-.053</td>
<td>-.178</td>
<td>-.125</td>
<td>-.005</td>
<td>.029</td>
<td>.062</td>
<td>.165</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Murder</td>
<td>.07</td>
<td>.197</td>
<td>-.148</td>
<td>-.116</td>
<td>-.161</td>
<td>-.197</td>
<td>-.138</td>
<td>-.404**</td>
<td>1</td>
</tr>
</tbody>
</table>

* significant at the .05 level; ** significant at the .01 level

Traffic: traffic/motoring-related offences, including taking and driving away, dangerous driving
Fraud: including deception, imitating another
Drugs: including possession of, dealing drugs
Damage: criminal damage
Acquisitive: acquisitive offences, including larceny, theft, robbery
Weapon: including possession of, threatening with weapon, imitation firearm
ABH: up to ABH-level interpersonal violence, including affray, assault
GBH: up to GBH-level interpersonal violence, including wounding
Murder: including manslaughter, attempted murder/manslaughter

Patients who had committed offences of interpersonal violence at the level of ABH were also significantly likely to have additional convictions for acquisitive offences and offences which involved the possession of a weapon. Acquisitive and weapon-related offences were, in turn, associated with having received convictions for traffic and drug-related offences, indicating that interpersonal offences up to the ABH-level are associated with general criminality. The lack of correlation between GBH-level violence and murder/manslaughter with other offences more generally may indicate that either 1) patients who have committed these offences are distinct from those who have a history of up to ABH-level interpersonal violence only, or 2) a range of convictions across categories mediate GBH-level violence and murder/manslaughter.

The negative correlation between GBH-level interpersonal violence and murder/manslaughter would suggest that this latter point is not so, as it indicates that, within this sample, the offence of murder is not the result of a pattern of escalating behaviour from the GBH-level. In fact, there is some degree of independence between the two offence categories, as the presence of a conviction of GBH-level interpersonal violence is strongly associated with an absence of convictions for murder or manslaughter. The relationships between offence categories are modelled in Figure 8.2.
The correlations between offence categories for this sample of Broadmoor patients indicate that a minimum of three groups be generated from this sample: 1) convictions to ABH-level interpersonal violence and non-interpersonal offences, 2) GBH-level interpersonal offences, and 3) convictions for murder/manslaughter, but excluding GBH-level offences. In practice, 5 offence-related groups were generated: 1) non-interpersonal and ABH-level offences, 2) non-interpersonal, ABH- and GBH-level offences, 3) non-interpersonal, ABH-level and murder/manslaughter offences, 4) murder/manslaughter (and non-interpersonal offences), and 5) all offences. Based on the findings of the inter-correlations between offence categories, it was considered prudent to account for the variety of the different levels of interpersonal violence. The generation of the 'ABH-level and murder/manslaughter' group was considered to be important to distinguish from the 'All offences' group, based on the relationship between GBH and murder/manslaughter in the inter-correlations.

8.3.1.3. Summary of offence-related group generation and membership

Based on a series of Phi correlations between offence categories, offence-related groups were generated from the Broadmoor and HM Prison samples. The three suggested groups generated from analysis of offence categories with the Broadmoor sample were partially replicated with the HM Prison sample. In addition, analysis of offences of the latter sample indicated that an additional group be generated of participants with a history of non-interpersonal offences only. A summary of offence-related groups, as well as number of participants per group, is presented in Table 8.3.
Table 8.3: Offence-related groups and associated frequencies for the Broadmoor and HM Prison samples

<table>
<thead>
<tr>
<th>Non-interpersonal: all participants without interpersonally-violent offences (e.g. ABH-level, GBH-level, Murder/manslaughter)</th>
<th>Broadmoor sample (n=56)</th>
<th>HM Prison sample (n=126)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABH-level: to include interpersonal offences up to the level of ABH and non-interpersonal offences</td>
<td>0</td>
<td>35 (27.78%)</td>
</tr>
<tr>
<td>GBH-level: to include interpersonal offences up to GBH-level (including ABH-level) and non-interpersonal offences</td>
<td>6 (10.71%)</td>
<td>24 (19.05%)</td>
</tr>
<tr>
<td>ABH-level and murder/manslaughter: to include non-interpersonal offences, interpersonal offences up to the level of ABH and at least one conviction for murder/manslaughter</td>
<td>19 (33.93%)</td>
<td>22 (17.46%)</td>
</tr>
<tr>
<td>All offences: to include interpersonal offences up to and including murder or manslaughter (including ABH- and GBH-level) and non-interpersonal offences</td>
<td>12 (21.43%)</td>
<td>0</td>
</tr>
<tr>
<td>Murder/manslaughter + non-interpersonal: to include offences of murder or manslaughter (to the exclusion of ABH- and GBH-level) and non-interpersonal offences</td>
<td>11 (19.64%)</td>
<td>21 (16.67%)</td>
</tr>
<tr>
<td>Murder/manslaughter + non-interpersonal: to include offences of murder or manslaughter (to the exclusion of ABH- and GBH-level) and non-interpersonal offences</td>
<td>8 (14.29%)</td>
<td>24 (19.05%)</td>
</tr>
</tbody>
</table>

All participants from Broadmoor Hospital had received at least one conviction for interpersonally violent behaviour, so no 'Non-interpersonal' group was formed with this sample.

8.3.2. Differences between offence-related groups across scales of the Inventory of Interpersonal Problems – Circumplex Scales

In section 6.4 of Chapter 6 it was established that a variety of interpersonal problems were endorsed to varying degrees across both the Broadmoor and HM Prison samples. As such, this provided a good basis for the further exploration of the interpersonal styles of violent offenders. The following two sections will explore the interpersonal styles, as indexed by the Inventory of Interpersonal Problems – Circumplex Scales (IIP-C; Horowitz et al., 2000), of the offence-related groups of the two forensic (HM Prison and Broadmoor) samples.

8.3.2.1. HM Prison sample offence-related groups

The frequencies of prisoners across each of the offence-related groups for the HM Prison sample were evenly distributed, so within-sample parametric testing of differences between groups was permitted. A multivariate analysis of variance (MANOVA) was performed with offence-related group (Non-interpersonal, ABH-level, ...
GBH-level, All offences, Murder/manslaughter and non-interpersonal) as the independent variable, to test for differences in mean scores across the eight scales of the IIP-C: Domineering/Controlling, Vindictive/Self-centred, Cold/Distant, Socially Inhibited, Nonassertive, Overly Accommodating, Self-sacrificing, Intrusive/Needy. Three multivariate outliers were identified and excluded from the 'Non-interpersonal' group (n=31), and a further four in the 'ABH-level' group (n=17).

Using Wilks' criterion, a main effect of group was found (F(4,101)=1.88, p<0.01), with significant differences between offence-related groups found on the 'Domineering/Controlling' (F(4,108)=6.37, p<0.01), 'Vindictive/Self-Centred' (F(4,108)=4.49, p<0.01) and 'Cold/Distant' (F(4,108)=3.28, p<0.05) scales. Post hoc (Tukey's HSD) testing revealed that prisoners in the 'GBH-level' group scored significantly higher than those in the 'Murder/manslaughter and non-interpersonal offences' and 'Non-interpersonal' groups on the 'Vindictive/Self-Centred' (p<0.01) scale. The Levene statistic for homogeneity of variance was significant for the 'Domineering/Controlling' (p<0.01) and 'Cold/Distant' (p<0.05) scales, so post hoc testing employed Dunnett's C. The 'GBH-level' group scored significantly higher than the 'Murder/manslaughter and non-interpersonal offences' and 'Non-interpersonal' groups on the 'Domineering/Controlling' scale, and significantly higher than the 'Murder/manslaughter and non-interpersonal' group on the 'Cold/Distant' scale. Mean scores for each of the three significant IIP-C scales across each of the 5 offence-related groups are presented in Figure 8.3.
The lower scores here on the 'Domineering/Controlling', 'Vindictive/Self-Centred' and 'Cold/Distant' scales for the 'Murder/manslaughter and non-interpersonal' and 'Non-interpersonal' groups indicate that people who have been convicted of offences of a non-interpersonal nature, such as traffic and drug-related offences, do not report significant interpersonal difficulties, relative to their interpersonally-violent counterparts. This would suggest that the use of interpersonal violence is associated with the 'Domineering/Controlling', 'Vindictive/Self-Centred' and 'Cold/Distant' region of the interpersonal circumplex, and is somewhat supported by the elevated scores on these scales among the 'ABH-level' and 'GBH-level' groups.

8.3.2.1.1. Interpersonal profile location in non-offending volunteer sample interpersonal space

One way of highlighting the degree of deviation (or otherwise) of the offence-related group interpersonal profiles is to plot these relative to the non-offending volunteer sample. The non-offending volunteer sample raw scale scores were transformed into t-scores, using the formula $t = a + bz$, where $a$ is the transformed mean value, $b$ is the transformed standard deviation, and $z$ is an individual's z-score. Consistent with the t-scores presented in the manual for the Inventory of Interpersonal Problems-
Circumplex Scales (IIP-C; Horowitz et al., 2000), all transformed scores were generated with a mean score of 50 and standard deviation of 10. Therefore, this generated an IIP-C profile with a mean of 50 across all scales for the non-offending volunteer sample. The mean HM Prison sample offence-related group scores were then calculated across each of the IIP-C scales. These scores were transformed into t-scores, relative to the non-offending sample standardised values. The offence-related group profiles, relative to that of the non-offending volunteer sample, are presented in Figures 8.4 to 8.8.

Figure 8.4: Inventory of Interpersonal Problems-Circumplex Scales profile for the HM Prison sample 'Non-interpersonal' offence-related group, relative to the non-offending volunteer sample t-scores
Figure 8.5: Inventory of Interpersonal Problems-Circumplex Scales profile for the HM Prison sample 'ABH-level' offence-related group, relative to the non-offending volunteer sample t-scores

Non-offending volunteer sample
HM Prison sample

PA: Dominating/Controlling
BC: Vindictive/Self-centred
DE: Cold/Distant
FG: Socially Inhibited
HI: Nonassertive
JK: Overly Accommodating
LM: Self-sacrificing
NO: Intrusive/Needy

Figure 8.6: Inventory of Interpersonal Problems-Circumplex Scales profile for the HM Prison sample 'GBH-level' offence-related group, relative to the non-offending volunteer sample t-scores

Non-offending volunteer sample
HM Prison sample

PA: Dominating/Controlling
BC: Vindictive/Self-centred
DE: Cold/Distant
FG: Socially Inhibited
HI: Nonassertive
JK: Overly Accommodating
LM: Self-sacrificing
NO: Intrusive/Needy
Figure 8.7: Inventory of Interpersonal Problems-Circumplex Scales profile for the HM Prison sample 'Murder/manslaughter and non-interpersonal' offence-related group, relative to the non-offending volunteer sample t-scores

Figure 8.8: Inventory of Interpersonal Problems-Circumplex Scales profile for the HM Prison sample 'All offences' offence-related group, relative to the non-offending volunteer sample t-scores
These profile locations reflect the findings of section 8.3.2.1., in that the 'ABH-level' and 'GBH-level' offence-related groups deviate from the non-offending volunteer sample profile most noticeably in the 'Domineering/Controlling' – 'Cold/Distant' quadrant. In addition, Figure 8.6 highlights the range of interpersonal problems that those members of the 'GBH-level' group reported.

8.3.2.2. Broadmoor sample offence-related groups

Due to the nature of the patients at Broadmoor Hospital it was not possible to generate equivalent-sized offence-related groups, with 89.29% of this sample having received a conviction for interpersonal violence higher than the ABH level. Therefore, a non-parametric Jonckheere-Terpstra test (Monte Carlo method) was performed to test for differences between the offence-related groups in terms of their scores on the IIP-C scales. Groups were first ordered as follows, in terms of the relative severity and extent of offending behaviour: ABH-level, GBH-level, Murder/manslaughter, ABH-level and murder/manslaughter, All offences. No significant differences were found between any of the groups (p=n/s: standardised Jonckheere-Terpstra statistics were as follows: 'Domineering/Controlling' -.46; 'Vindictive/Self-centred' .63; 'Cold/Distant' -.56; 'Socially inhibited' -.33; ‘Nonassertive’ -.43; ‘Overly accommodating’ -1.48; ‘Self-sacrificing’ -.47; ‘Intrusive/Needy’ .21).

8.3.2.2.1. Interpersonal profile location in non-offending volunteer sample interpersonal space

As described in section 8.3.2.1.1., one way of highlighting the degree of deviation (or otherwise) of the offence-related group interpersonal profiles is to plot these relative to the non-offending volunteer sample. The mean Broadmoor offence-related group scores for each of the HM Prison and Broadmoor samples were calculated across each of the IIP-C scales and transformed into t-scores, relative to the non-offending sample standardised values. The offence-related group profiles, relative to that of the non-offending volunteer sample, are presented in Figures 8.9 to 8.13.
Figure 8.9: Inventory of Interpersonal Problems-Circumplex Scales profile for the Broadmoor sample 'ABH-level' offence-related group, relative to the non-offending volunteer sample t-scores

Non-offending volunteer sample

Broadmoor sample

PA: Domineering/Controlling
BC: Vindictive/Self-centred
DE: Cold/Distant
FG: Socially Inhibited
HI: Nonassertive
JK: Overly Accommodating
LM: Self-sacrificing
NO: Intrusive/Needy

Figure 8.10: Inventory of Interpersonal Problems-Circumplex Scales profile for the Broadmoor sample 'GBH-level' offence-related group, relative to the non-offending volunteer sample t-scores

Non-offending volunteer sample

Broadmoor sample

PA: Domineering/Controlling
BC: Vindictive/Self-centred
DE: Cold/Distant
FG: Socially Inhibited
HI: Nonassertive
JK: Overly Accommodating
LM: Self-sacrificing
NO: Intrusive/Needy
Figure 8.11: Inventory of Interpersonal Problems-Circumplex Scales profile for the Broadmoor sample ‘Murder/manslaughter and non-interpersonal’ offence-related group, relative to the non-offending volunteer sample t-scores

Non-offending volunteer sample
Broadmoor sample

PA: Domineering/Controlling
BC: Vindictive/Self-centred
DE: Cold/Distant
FG: Socially Inhibited
HI: Nonassertive
JK: Overly Accommodating
LM: Self-sacrificing
NO: Intrusive/Needy

Figure 8.12: Inventory of Interpersonal Problems-Circumplex Scales profile for the Broadmoor sample ‘ABH-level and murder/manslaughter’ offence-related group, relative to the non-offending volunteer sample t-scores

Non-offending volunteer sample
Broadmoor sample

PA: Domineering/Controlling
BC: Vindictive/Self-centred
DE: Cold/Distant
FG: Socially Inhibited
HI: Nonassertive
JK: Overly Accommodating
LM: Self-sacrificing
NO: Intrusive/Needy
Although no significant differences were found between the offence-related groups in terms of interpersonal style, Figures 8.9 to 8.13 indicate that there are differences in interpersonal profiles between offence-related groups. In particular, the 'GBH-level' and 'ABH-level and murder/manslaughter' groups are characterised by high levels of self-reported interpersonal problems on the 'Cold/Distant', 'Socially Inhibited' and 'Nonassertive' scales. The 'Murder/manslaughter' group achieved relatively high scores on the 'Vindictive/Self-centred', 'Cold/Distant' and 'Socially Inhibited' scales. The 'ABH-level' and 'All offences' group profiles did not reflect the Interpersonal Circumplex principle of complementarity, in that the interpersonal profiles for these groups were spread across scales. This is indicative of heterogeneity of interpersonal style among these two groups of offenders, and will be discussed further in section 8.7.

8.3.2.3. Summary

Non-parametric testing did not reveal any significant differences in the amount or type of interpersonal problems reported across offence-related groups among patients at Broadmoor Hospital, although qualitative differences between group profiles were
observed. Parametric tests for group differences on the Inventory of Interpersonal Problems – Circumplex Scales among the HM Prison sample revealed that offence-related groups differed in terms of the amount and type of interpersonal problems reported, with the 'GBH-level' group scoring significantly higher than the 'Murder/manslaughter and non-interpersonal' group across the 'Domineering/Controlling', 'Vindictive/Self-Centred' and 'Cold/Distant' scales, and significantly higher than the 'Non-interpersonal' group on the 'Domineering/Controlling' and 'Vindictive/Self-Centred' scales. The generation of clear, offence-related group, characteristic interpersonal style was not an objective of these analyses, but rather the question as to whether different groups of offenders have differing interpersonal styles. The results indicate that, when differentiated in terms of the level of interpersonal violence previously employed, there are differences in terms of the frequency and type of interpersonal problems reported.

8.3.3. The relationship between interpersonal style and offence categories

Having established that, dependent on the level of interpersonal violence previously employed, offenders reported differing interpersonal problems, a series of point-biserial correlations were performed to explore the degree of association between the eight interpersonal scales and the nine offence categories, for each of the Broadmoor (n=56) and HM Prison samples (n=120). Significant correlations are presented in Table 8.4.

Among the prison sample, all significant positive correlations fell within the 'Domineering/Controlling' and 'Vindictive/Self-Centred' domains, with the exception of the criminal damage offence category, which was associated with a high score on the 'Intrusive/Needy' scale. A high score on the 'Domineering/Controlling' scale was associated with having committed acquisitive offences, criminal damage, fraud, possessing a weapon, as well as ABH- and GBH-level interpersonal violence. A high score on the 'Vindictive/Self-Centred' scale was associated with having committed the offences of criminal damage and fraud, as well as ABH- and GBH-level violence. The offences of murder/manslaughter were significantly correlated with a low score on the 'Cold/Distant' scale. These results are described in relation to the interpersonal circumplex in Figure 8.14.
These results lend some support to the previous findings, in which those in the 'GBH-level' and 'ABH-level' offence-related groups were found to score significantly higher than those in the 'Murder/manslaughter and non-interpersonal' group across these three scales. Furthermore, the high scores obtained by the 'ABH-' and 'GBH-level' groups, relative to those in other groups, across the 'Domineering/Controlling', 'Vindictive/Self-Centred' and 'Cold/Distant' scales, in conjunction with the pattern of correlations found here, indicates that these two offence-related groups are characterised by general criminality in addition to these particular interpersonal styles. Within this particular sample of HM prisoners, offences of both interpersonal and non-interpersonal aggressive and violent behaviour are associated with controlling, manipulative and revenge-seeking behaviours, as well as the perceptions that one's sense of self is under threat and that others' intentions are hostile.

Among the Broadmoor sample, the offence of criminal damage was associated with high scores on both the 'Socially Inhibited' and 'Overly Accommodating' scales. Having received a conviction for possession of drugs was associated with a low score
on the 'Vindictive/Self-Centred' scale. These results are described in relation to the interpersonal circumplex in Figure 8.15.

Figure 8.15: The location of offence categories relative to the Broadmoor sample scores on the Inventory of Interpersonal Problems-Circumplex scales

The location of criminal damage among this sample is interesting, as it suggests that the members of the Broadmoor sample who have received a conviction for criminal damage are different from their counterparts in the HM Prison sample. Whilst this offence was associated with a controlling interpersonal style among the prisoners, this is associated with styles more characteristic of a lack of control over interpersonal contexts. The 'Socially Inhibited' style is characteristic of social anxiety and, as such, aggressive behaviour towards other people is restricted by social avoidance. Therefore, patients who score high on this scale may direct their aggressive feelings towards objects, rather than other people. The 'Overly Accommodating' style is characterised by a reluctance to express anger, lest they incur another person's hostility or retaliation. Therefore, patients in this sample who score high on this scale may internalise feelings of anger, until such a time when they are able to express this towards an object.
Somewhat surprisingly, patients who received a conviction for GBH-level interpersonal violence also scored low on the 'Cold/Distant' scale. Once again, this may suggest that this sample of Broadmoor patients are different from the HM Prison sample in terms of how they use this behaviour, but may also reflect the effects of undergoing therapeutic interventions to address offending behaviour. This latter hypothesis would appear to be more plausible, given that common features of an individual who experiences active psychotic symptoms and severe mental health problems are social withdrawal and isolation.

8.3.4. Interpersonal style as discriminating between offence-related groups
In order to assess the extent to which interpersonal style can discriminate between people with different violent offending histories, discriminant function analyses were performed with the offence-related groups for each of the HM Prison and Broadmoor samples.

8.3.4.1. HM Prison sample offence-related groups
A direct discriminant function analysis was performed using the eight interpersonal variables as predictors of membership in five groups. Predictors were the Inventory of Interpersonal Problems – Circumplex scales scores of 'Domineering/Controlling', 'Vindictive/Self-Centred', 'Cold/Distant', 'Socially Inhibited', 'Non-assertive', 'Overly Accommodating', 'Self-Sacrificing' and 'Intrusive/Needy'. Groups were 'Non-interpersonal', 'ABH-level', 'GBH-level', 'All offences' and 'Murder/manslaughter and non-interpersonal'.

Three multivariate outliers were identified and excluded from the 'Non-interpersonal' group (n=31), and a further three in the 'ABH-level' group (n=18). Assumptions regarding linearity, normality and multicollinearity were met across the remaining three groups: 'GBH-level' (n=21), 'All offences' (n=21), and 'Murder/manslaughter and non-interpersonal' (n=23).

Four discriminant functions were calculated, with a combined $\chi^2(32) = 55.08$, $p<0.01$. After removal of the first function there was no significant association between groups and predictors. The first discriminant function accounted for 61.6% of the between-group variability. As shown in Figure 8.16, the first discriminant function maximally separates the 'GBH-level' group from the 'Murder/manslaughter and non-
interpersonal' and 'Non-interpersonal' groups, with those in the 'All offences' and 'ABH-level' groups falling between these and the 'GBH-level' group.

Figure 8.16: Plots of five HM Prison sample offence-related group centroids on two discriminant functions derived from the scales of the Inventory of Interpersonal Problems-Circumplex scales

The loading matrix of correlations between predictors and discriminant functions, as seen in Table 8.5, suggests that the best predictors for distinguishing the 'GBH-level' group from the 'Murder/manslaughter and non-interpersonal' and 'Non-interpersonal' groups (first discriminant function) are 'Domineering/Controlling', 'Vindictive/Self-Centred' and 'Cold/Distant'. Loadings less than .3 are not interpreted.
Table 8.5: Results of discriminant function analysis of the Inventory of Interpersonal Problems – Circumplex scales with the offence-related groups of the HM Prison sample

<table>
<thead>
<tr>
<th>Predictor variable</th>
<th>1</th>
<th>Univariate $F$ (4,109)</th>
<th>Pooled within-group correlations among predictors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Domineering/Controlling</td>
</tr>
<tr>
<td>Domineering/Controlling</td>
<td>.78</td>
<td>6.42**</td>
<td>1</td>
</tr>
<tr>
<td>Vindictive/Self-centred</td>
<td>.67</td>
<td>4.21**</td>
<td>1</td>
</tr>
<tr>
<td>Cold/Distant</td>
<td>.55</td>
<td>3.09*</td>
<td>1</td>
</tr>
</tbody>
</table>

Canonical R | .51  
Eigenvalue | .36

* Significant at the 0.05 level; ** significant at the 0.01 level

As evidenced in section 8.3.2.1., those in the 'GBH-level' offence-related group reported significantly more interpersonal problems on the 'Domineering/Controlling' and 'Vindictive/Self-Centred' scales than the 'Murder/manslaughter and non-interpersonal' and 'Non-interpersonal' groups, and significantly more than the 'Murder/manslaughter and non-interpersonal' group on the 'Cold/Distant' scale. The separation between the 'ABH-level' group and the 'Murder/manslaughter and non-interpersonal' and 'Non-interpersonal' group would appear to reflect differences in the second, non-significant, discriminant function.

Pooled within-group correlations among the three predictors are shown in Table 8.5. All correlations would show statistical significance at the $\alpha=0.01$ level, if tested individually. There is a positive relationship between reporting high levels of dominance, vindictiveness and emotional distance from others. This indicates that, among this sample of prisoners, those who need to be in control, have little regard for the safety and rights of others and have little emotional connection with others have a history of committing acts of extreme interpersonal violence, to the exclusion of taking the life of another. This suggests that, for some people, this characteristic interpersonal style is central to their offending behaviour. However, there would appear to be different, or less extreme, interpersonal motivations associated with the acts of aggression and violence perpetrated by the members of the remaining offence-related groups.

Across the total sample of 114, 44 (38.6%) prisoners were correctly classified into offence-related groups, compared to 24 (21%) who would be correctly classified by
chance alone. Using sample proportions as prior probabilities, 51.6% of the 'Non-interpersonal' group were classified correctly, as were 42.9% of the 'GBH-level' group, 38.9% of the 'ABH-level' group and 34.8% of the 'Murder/manslaughter and non-interpersonal' group. Just 19% (less than chance) of the 'All offences' group were correctly classified, which may be explained by the heterogeneity of offences within that group.

8.3.4.2. Broadmoor sample offence-related groups

A direct discriminant function analysis was performed using the eight interpersonal variables as predictors of membership in five groups. Predictors were the Inventory of Interpersonal Problems – Circumplex scales scores of 'Domineering/Controlling', 'Vindictive/Self-Centred', 'Cold/Distant', 'Socially Inhibited', 'Non-assertive', 'Overly Accommodating', 'Self-Sacrificing' and 'Intrusive/Needy'. Groups were 'GBH-level', 'ABH-level and murder/manslaughter' and 'All offences'. The 'ABH-level' and 'Murder/manslaughter and non-interpersonal' groups were not of sufficient size to permit analyses.

Two multivariate outliers were identified and excluded from the 'GBH-level' group (n=17). Assumptions regarding linearity, normality and multicollinearity were met across the remaining two groups: 'ABH-level and murder/manslaughter' (n=12), 'All offences' (n=11).

Two discriminant functions were calculated, with a combined $\chi^2(16) = 17.59$, p=n/s. There were no significant associations between groups and predictors. The first discriminant function accounted for 57.2% of the between-group variability. As shown in Figure 8.17, there was little spatial separation between the three groups. On the first discriminant function, the 'ABH-level and murder/manslaughter' and 'All offences' groups were most distant from each other.
The loading matrix of correlations between predictors and discriminant functions, as seen in Table 8.6, suggests that the best predictors for distinguishing the 'ABH-level and murder/manslaughter' group from the 'All offences' group (first discriminant function) are the 'Cold/Distant', 'Socially Inhibited' and 'Nonassertive' scales of the Inventory of Interpersonal Problems-Circumplex Scales.
Table 8.6: Results of discriminant function analysis of the Inventory of Interpersonal Problems-Circumplex Scales with three offence-related groups of the Broadmoor sample

<table>
<thead>
<tr>
<th>Predictor variable</th>
<th>Correlations of predictor variables with discriminant functions</th>
<th>Pooled within-group correlations among predictors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>Univariate $F$ (2,37)</td>
</tr>
<tr>
<td>Domineering/Controlling</td>
<td>.03</td>
<td>.15</td>
</tr>
<tr>
<td>Vindictive/Self-centred</td>
<td>.13</td>
<td>1.41</td>
</tr>
<tr>
<td>Cold/Distant</td>
<td>.38</td>
<td>.91</td>
</tr>
<tr>
<td>Socially Inhibited Nonassertive</td>
<td>.48</td>
<td>1.48</td>
</tr>
<tr>
<td>Overtly Accommodating Self-sacrificing</td>
<td>.22</td>
<td>.33</td>
</tr>
<tr>
<td>Intrusive/Needy</td>
<td>.08</td>
<td>.10</td>
</tr>
<tr>
<td>Canonical R</td>
<td>.58</td>
<td></td>
</tr>
<tr>
<td>Eigenvalue</td>
<td>.5</td>
<td></td>
</tr>
</tbody>
</table>

Although there were no significant differences between the groups across scales of the Inventory of Interpersonal Problems-Circumplex Scales, there were group differences in profiles. Figure 8.18 describes the pattern of responses across each of the scales for the 'All offences', 'GBH-level' and 'ABH-level and murder/manslaughter' groups. In particular, the 'ABH-level and murder/manslaughter' group scored higher than the other two groups across the 'Cold/Distant', 'Socially Inhibited' and 'Nonassertive' scales. As these were also the strongest correlations with the first discriminant function, it is likely that these three variables, in combination, can account for the slight spatial separation between the 'ABH-level and murder/manslaughter' and 'All offences' group, in particular.
Pooled within-group correlations among the eight predictors are shown in Table 8.6. All but one of the correlations would show statistical significance at the $\alpha=0.01$ level, if tested individually. The correlation between 'Cold/Distant' and 'Intrusive/Needy' would be significant at the $\alpha=0.05$ level.

Across the total sample of 40, 24 (60%) patients were correctly classified into offence-related groups, compared to 14 (35%) who would be correctly classified by chance alone. Using sample proportions as prior probabilities, 70.6% of the 'GBH-level' group were classified correctly, as were 54.5% of the 'All offences' group, and 50% of the 'ABH-level' group.
8.4. Differences between offence-related groups on measures of agency, communion and specific individual difference factors

In order to explore the extent to which different levels of violent behaviour might be motivated by concerns about agency and communion, a series of between-groups analyses were performed across the offence-related groups of the HM Prison and Broadmoor samples, on the General Perceived Self-Efficacy scale (GSE; Schwarzer and Jerusalem, 1995) and ‘Social estrangement’ scale of the Psychological Estrangement questionnaire (PSE; Hammond, 1988). Results of analyses in section 6.6. of Chapter 6 suggest that these scales reflect agency and (lack of) communion within the Interpersonal Circumplex. The additional PSE scale of ‘Existential estrangement’, as well as measures of cognitive and affective empathic ability were included as specific individual difference factors related to aggressive and violent behaviour.

8.4.1. Self-efficacy

Between-group differences in terms of agency were measured by the General Perceived Self-Efficacy questionnaire (GSE; Schwarzer and Jerusalem, 1995).

8.4.1.1. Offence-related groups of the HM Prison sample

One member of the 'All offences' group did not complete the GSE, so was excluded from analysis (n=125). Analysis of variance (ANOVA) was performed with prison offence-related group (Non-interpersonal, ABH-level, GBH-level, All offences, Murder/manslaughter and non-interpersonal) as the independent variable, to test for differences in mean scores on the GSE. No significant difference between groups was found, F(4,120)=1.51, p=n/s.

8.4.1.2. Offence-related groups of the Broadmoor sample

Non-parametric testing between Broadmoor sample offence-related groups (total n=56) on the GSE was carried out. Groups were first ordered as follows, in terms of the relative severity and extent of offending behaviour: ABH-level, GBH-level, Murder/manslaughter, ABH-level and murder/manslaughter, All offences. A Jonckheere-Terpstra test (Monte Carlo method) revealed differences between groups on the GSE (standardised Jonckheere-Terpstra statistic = -2.54, p<0.01). Those in the 'ABH-level' offence-related group scored highest, followed by the 'Murder/manslaughter' and 'GBH-level' groups. Mean ranked scores on the GSE scale for each of the groups are presented in Figure 8.19.
In section 6.6.1.3. of Chapter 6, the 'Non-assertive' scale significantly predicted self-efficacy, indicative of negative agency being associated with this scale. The lower mean ranked scores on the GSE across the 'ABH-level and murder/manslaughter' and 'All offences' groups indicates that these groups, in particular, are motivated by negative agency. This is in contrast to the hypothesised location of offenders with extensive histories of the use of violent behaviour, which anticipated that these people would be characterised by high agency. Whilst the method of classification of offenders into offence-related groups is not based on frequency of violent offending history, the 'All offences' and 'ABH-level and murder/manslaughter' groups include people with a range of at least two forms of interpersonally violent behaviour, at least one of which being the murder or manslaughter of another. This will be discussed further in section 8.6. of this chapter.

### 8.4.2. Psychological estrangement

Between-group differences in terms of (lack of) communion were measured by the 'Social estrangement' scale of the Psychological Estrangement questionnaire (PSE; Hammond, 1988). Between-groups differences were also performed on the
'Existential estrangement' scale, to test for difference on this specific individual difference factor.

8.4.2.1. Offence-related groups of the HM Prison sample

Four prisoners were excluded from analysis, as the PSE was not complete (n=122). Two were excluded from the 'ABH-level' group (n=22), one was excluded from the 'GBH-level' group (n=21), and one was excluded from the 'Murder/manslaughter and non-interpersonal' group (n=23). A multivariate analysis of variance (MANOVA) was performed with prison offence-related group (Non-interpersonal, ABH-level, GBH-level, All offences, Murder/manslaughter and non-interpersonal) as the independent variable, to test for differences in mean scores across the two PSE scales: Existential estrangement, Social estrangement. Using Wilks’ criterion, no main effect of group was found, F(2,118)=.76, p=n/s.

8.4.2.2. Offence-related groups of the Broadmoor sample

Non-parametric testing between Broadmoor sample offence-related groups across two PSE scales ('Existential estrangement', 'Social estrangement') was carried out to explore the relationship between offence-related groups and psychological estrangement. Groups were first ordered as follows, in terms of the relative severity and extent of offending behaviour: ABH-level, GBH-level, Murder/manslaughter, ABH-level and murder/manslaughter, All offences. A Jonckheere-Terpstra test (Monte Carlo method) did not reveal differences between group score on either scale: (p=n/s: standardised Jonckheere-Terpstra statistics were as follows: 'Social estrangement' = -.14; 'Existential estrangement' = .28).

8.4.3. Empathic ability

Two scales of cognitive and affective empathic ability from the Interpersonal Reactivity Index (IRI; Davis, 1980) were selected to assess individual differences in perspective taking ability and empathic concern across offence-related groups.

8.4.3.1. Offence-related groups of the HM Prison sample

Two prisoners were excluded from analysis as they did not complete the IRI (n=124). One was a member of the 'ABH-level' group (n=23); the other was a member of the 'Murder/manslaughter and non-interpersonal' group (n=23). A multivariate analysis of variance (MANOVA) was performed with prison offence-related group (Non-interpersonal, ABH-level, GBH-level, All offences, Murder/manslaughter) as the
independent variable, to test for differences in mean scores across two IRI scales: Empathic concern, Perspective taking. Using Wilks' criterion, a significant main effect of group was found ($F(4,117)=2.31, p<0.05$). Univariate F for 'Perspective taking' was significant ($F(4,117)=2.53, p<0.05$), with the 'Murder/manslaughter and non-interpersonal' group scoring significantly higher than the 'GBH-level' group on this scale. Mean 'Perspective taking' scores for each of the five offence-related groups are presented in Figure 8.20.

Figure 8.20: Mean 'Perspective taking' scores the HM Prison sample offence-related groups

![Graph showing mean scores for 'Perspective taking' across different groups.]

A high score on the 'Perspective taking' scale indicates ability to appreciate the perspective of another. These results indicate that people who have committed murder, in addition to non-interpersonal offences, are more able to take the perspective of others than offenders who use other forms of violent behaviour. Furthermore, those offenders who have been convicted for a series of offences up to the level of GBH are significantly less able to appreciate the perspective of others than those who have received convictions for murder and non-interpersonal offences. These results will be discussed further in section 8.6. of this chapter.
8.4.3.2. Offence-related groups of the Broadmoor sample

One patient in the ‘Murder/manslaughter and non-interpersonal’ group did not complete the IRI, so was excluded from analysis. Non-parametric testing between Broadmoor sample offence-related groups across two IRI scales (‘Empathic concern’, ‘Perspective taking’) was carried out to explore the relationship between offence-related group and empathic ability. Groups were first ordered as follows, in terms of the relative severity and extent of offending behaviour: ABH-level, GBH-level, Murder/manslaughter, ABH-level and murder/manslaughter, All offences. A Jonckheere-Terpstra test (Monte Carlo method) did not reveal any differences between groups scores on the ‘Empathic concern’ or ‘Perspective taking’ scales: (p=n/s: standardised Jonckheere-Terpstra statistics were as follows: ‘Empathic concern’ = -.25; ‘Perspective taking’ = -.60).

8.5. Exploring the relationship between offending behaviour and aggression

Differences in self-reported aggression using the Aggression Questionnaire (AQ; Buss and Warren, 2000) have been reported between the two HM Prison and Broadmoor samples in section 7.3. of Chapter 7. Therefore, this section will explore the differences in self-reported aggression between groups of offenders who have historically used differing levels of interpersonal violence. First, this section will explore the relationship between self-reported aggression and historical indices of violence. This will be followed by an exploration of the relationship between offending behaviour and self-reported aggression.

8.5.1. The relationship between self-reported aggression and offence categories

The relationship between violence (as indexed by offending history) and aggression (as indexed by the AQ) was explored through a series of point-biserial correlations across both the Broadmoor (n=54) and HM Prison (n=122) samples. Significant correlations are presented in Table 8.7.
Table 8.7.: Point biserial correlations between offence categories and scales of the Aggression Questionnaire, for each of the HM Prison and Broadmoor samples

<table>
<thead>
<tr>
<th></th>
<th>Physical</th>
<th>Verbal</th>
<th>Anger</th>
<th>Hostility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HMP</td>
<td>BMR</td>
<td>HMP</td>
<td>BMR</td>
</tr>
<tr>
<td>Traffic</td>
<td>.31**</td>
<td>-.103</td>
<td>.14</td>
<td>.032</td>
</tr>
<tr>
<td>Acquisit</td>
<td>.357**</td>
<td>-.062</td>
<td>.194*</td>
<td>.01</td>
</tr>
<tr>
<td>Damage</td>
<td>.37**</td>
<td>-.047</td>
<td>.18**</td>
<td>-.074</td>
</tr>
<tr>
<td>Fraud</td>
<td>.056</td>
<td>-.123</td>
<td>.186*</td>
<td>-.207</td>
</tr>
<tr>
<td>Drugs</td>
<td>.212*</td>
<td>.056</td>
<td>.152</td>
<td>-.133</td>
</tr>
<tr>
<td>Weapon</td>
<td>.315**</td>
<td>-.157</td>
<td>.306**</td>
<td>-.107</td>
</tr>
<tr>
<td>ABH</td>
<td>.388**</td>
<td>-.112</td>
<td>.375**</td>
<td>-.018</td>
</tr>
<tr>
<td>GBH</td>
<td>.363**</td>
<td>-.077</td>
<td>.118</td>
<td>-.094</td>
</tr>
<tr>
<td>Murder</td>
<td>-.169</td>
<td>-.19</td>
<td>-.123</td>
<td>-.137</td>
</tr>
</tbody>
</table>

* significant at the .05 level; ** significant at the .01 level

Physical: Physical aggression
Verbal: Verbal aggression
Anger: Anger
Hostility: Hostility

Traffic: traffic/motoring-related offences, including taking and driving away, dangerous driving
Fraud: including deception, imitating another
Drugs: including possession of, dealing drugs
Damage: criminal damage
Acquisit: acquisitive offences, including larceny, theft, robbery
Weapon: including possession of, threatening with weapon, imitation firearm
ABH: up to ABH-level interpersonal violence, including affray, assault
GBH: up to GBH-level interpersonal violence, including wounding
Murder: including manslaughter, attempted murder/manslaughter

Among the prison sample, the offence category of 'murder/manslaughter' did not correlate with any of the aggression scales, adding further support to the disparate nature of this crime. A high score on the 'Physical aggression' scale was positively correlated with all other offence categories, other than fraud. As 'Fraud' and various other offence categories also correlated with the interpersonal scales of 'Domineering/Controlling' and 'Vindictive/Self-Centred', this indicates that physical aggression may not be specifically located within those domains. A high score on 'Verbal aggression' correlated positively with acquisitive offences and possession of a weapon (both of which would be associated with robbery), as well as criminal damage, fraud and ABH-level interpersonal violence. Traffic and acquisitive offences, as well as criminal damage, possession of a weapon and GBH-level violence correlated positively with both 'Anger' and 'Hostility'; 'ABH-level' violence also correlated with 'Anger', suggesting that this is an important mediator in interpersonally violent behaviour.

Convictions for acquisitive offences, criminal damage or possession of a weapon were associated with self-reported anger, hostility, physical and verbal aggression among this sample of prisoners. As such, this general aggression would appear to be
manifest in offences towards society more generally, as opposed to individuals specifically. This would also be representative of general aggression being associated with general criminality, which is considered to be a product of alienation from society and a lack of concern for others.

Furthermore, differences between the levels of interpersonal violence used (i.e. ABH – or GBH-level) are evident in terms of self-reported aggression. Having received a conviction for ABH-level violence is associated with anger, physical and verbal aggression, whereas hostility, rather than verbal aggression, is associated with GBH-level violence. This implicates high levels of hostility, in combination with anger and physical aggression, in increasing severity of interpersonal violence. The ‘Hostility’ scale of the AQ is the one most closely associated with pervasive social maladjustment, with a high score indicating affective disturbance and social isolation among people who generate internalised reactions to perceived assaults on their well-being by others.

Only two correlations among the Broadmoor sample reached statistical significance. Contrary to the findings among the Prison sample, a low score on the ‘Anger’ scale was associated with having been convicted for possessing drugs and a weapon. The majority of the correlations among the Broadmoor sample were negative, further emphasising the disparate nature of this sample as a whole from the Prison general offending non-mentally disordered sample.

8.5.2. Differences between offence-related groups across scales of the Aggression Questionnaire

The previous section (8.5.1.) demonstrated that offence categories were associated with differing forms of self-reported aggression. As such, it is plausible that the offence-related groups of the HM Prison and Broadmoor samples reported differing types and levels of aggression, as was found with between-group within-sample analyses of the self-reported interpersonal problems in section 8.3.2. The following two sections will explore differences in self-reported aggression, as indexed by the Aggression Questionnaire (AQ), of the offence-related groups of the two forensic samples.
8.5.2.1. HM Prison sample offence-related groups

A multivariate analysis of variance (MANOVA) was performed with prison offence-related group (Non-interpersonal, ABH-level, GBH-level, All offences, Murder/manslaughter and non-interpersonal) as the independent variable, to test for differences in mean scores across the four scales of the AQ: Physical aggression, Verbal aggression, Anger, Hostility. Using Wilks' criterion, a main effect of group was found \((F(4,114)=2.71, p<0.01)\), with significant differences between offence-related groups found on the 'Physical aggression' \((F(4,117)=6.95, p<0.01)\), 'Verbal aggression' \((F(4,117)=5.5, p<0.01)\) and 'Anger' \((F(4,117)=4.21, p<0.01)\) scales. The Levene statistic for homogeneity of variance was significant \((p<0.01)\) for all three significant scales, so post hoc testing employed Dunnett's C. Prisoners in the 'GBH-level' group scored significantly higher than those in the 'Murder/manslaughter and non-interpersonal offences' group on 'Physical aggression' and 'Anger', as well as the 'Non-interpersonal' group on the 'Physical aggression' scale. Those in the 'ABH-level' group also scored significantly higher than prisoners in the 'Non-interpersonal' and 'Murder and non-interpersonal' groups on the 'Verbal aggression' scale, and higher than the 'Murder and non-interpersonal group' on 'Physical aggression'. Mean (raw) scores for each of the four AQ scales across each of the 5 offence-related groups are presented in Figure 8.21.

Increasingly high scores on each of the AQ scales reflect increasing levels of trait aggression. Those offenders who had not received a conviction for interpersonally violent offences and those who had received a conviction for murder or manslaughter only reported significantly less physical aggression than the offenders with a history of interpersonally violent offences up to the ABH and GBH levels. This finding is not solely attributable to the nature of convictions received, as the 'All offences' group did not report significantly different levels of aggression than the other offence-related groups. The 'ABH-level' group reported the highest level of verbal aggression and significantly more than the 'Non-Interpersonal' and 'Murder/manslaughter and non-interpersonal' groups. The higher levels of self-reported anger among the 'GBH-level' group may be indicative of the importance of the role of anger for people who have committed these offences. These results will be discussed further in section 8.6.
8.5.2.2. Broadmoor sample offence-related groups

Non-parametric testing between Broadmoor sample offence-related groups across four AQ scales (‘Physical aggression’, ‘Verbal aggression’, ‘Anger’, ‘Hostility’) was carried out to explore the relationship between offence-related group and aggression. A Jonckheere-Terpstra test (Monte Carlo method) revealed differences between group scores on the ‘Physical aggression’ scale (standardised Jonckheere-Terpstra statistic=-2.63, p<0.01, 95% confidence limits .005 to .009), with those in the ‘ABH-level’ offence-related group scoring highest, followed by the ‘Murder/manslaughter’ and ‘GBH-level’ groups. Mean ranked scores on the ‘Physical aggression’ scale for each of the groups are presented in Figure 8.22. No other significant differences were found (Jonckheere-Terpstra statistics for the remaining scales were as follows: ‘Verbal aggression’ -1.56; ‘Anger’ -1.22; ‘Hostility’ -.29).
High scores on the 'Physical aggression' scale indicate a self-reported lack of ability to control urges toward physical aggression. The higher relative score achieved here by the Broadmoor 'ABH-level' group suggests that these mentally disordered offenders find it more difficult to resist this urge towards physical aggression. Due to the self-report nature of the Aggression Questionnaire, it is unclear as to whether this group of patients were consistently more physically aggressive than their counterparts who had received convictions for more serious offences involving interpersonal violence. It may be that this group have more insight into their behaviour than other groups, and feel more able to report difficulties with controlling their physically aggressive behaviour. These results will be discussed further in section 8.6.
8.6. Discussion
The present chapter aimed to examine differences in interpersonal style between different groups of violent offenders, explore the relationship between different patterns of interpersonally violent offences and interpersonal style, and assess the extent to which interpersonal style can discriminate between people with different violent offending histories. Furthermore, this chapter aimed to explore the relationship between self-reported aggressive behaviour and historical indices of violence, in addition to the extent to which aggressive and violent behaviour is motivated by concerns about agency and communion. The results of the analyses presented in this chapter are discussed in the following sections, with reference to these specific aims.

8.6.1. Interpersonal style amongst violent offenders
Among the HM Prison sample, the 'GBH-level' group reported significantly more interpersonal problems characterised by the 'Domineering/Controlling', 'Vindictive/Self-centred' and 'Cold/Distant' scales than the groups which had not received convictions for interpersonally violent offences, other than murder or manslaughter. Furthermore, these interpersonal characteristics were also found to discriminate between offence-related groups, with good levels of correct group classification on this basis. This is interesting, as it suggests that a person who has been involved in the death of another person is distinct - in terms of interpersonal style - from those who have committed interpersonally violent acts with different consequences. In addition, it is interesting to consider that the offence of murder is also treated as a unique and distinct offence in the research literature, one possible explanation for which is the prevalence of murder or manslaughter within the family unit. It was not within the scope of the present research to investigate individual motivations for and details of specific offences. However, this finding suggests that a lack of communion with others may not be as relevant to individuals who commit murder or manslaughter (to the exclusion of other interpersonally violent offences) as it appears to be to those who use violence more generally, albeit at a level at which the consequences are perceived to be less severe. This is somewhat at odds with the hypothesis that offenders with extensive histories of the use of violent behaviour would be characterised by a lack of communion with others and high agency. This might be explained with reference to the comparison of motivation and function between the following two examples: 1) a man with a good, steady, job, and member of various community groups who kills someone for the 'good' of that person or another, such as a terminally ill partner, or in order to protect a loved one; 2) a man
who has little regard for the safety and rights of others and uses violent behaviour to intimidate others into compliance. The first man may feel a high level of affiliation with others and society and be considerate of the needs of others, although perceives that their behaviour is for some altruistic or benign reason. However, the second man may experience the world as being a hostile place and perceives that the most effective method of securing compliance from others and achieving their objectives is through the use of interpersonal violence. The present findings suggest that offenders with a history of repeated interpersonally violent behaviour are motivated by a belief in their ability to use the behaviour to reach the desired ends, and a lack of emotional attachment and concern for others. Furthermore, these offenders differ in their motivations from those who have not received convictions for the use of interpersonally violent offences, or who have received a conviction for murder or manslaughter, to the exclusion of other interpersonally violent offences. This is an important finding in relation to the treatment and management of violent offenders, as this indicates that interpersonally violent offenders with a range of these convictions interact with others differently to offenders who have committed murder or manslaughter to the exclusion of other interpersonal offences. As such, the motivations and functions of the behaviour for the individual are likely to differ also.

The extent to which having taken someone's life may encourage self-reflection and attitudinal change among interpersonally violent offenders is unclear from the present results, although the profile of the 'All offences' group suggests that this may be the case for some offenders. However, there is also a possibility that those in the 'Murder/manslaughter and non-interpersonal' group under-reported the level of interpersonal problems which they experience, particularly as they scored less than (although within the normal range) the non-offending volunteer sample across many of the scales. One reason for under-reporting interpersonal problems among this group might be defensiveness or even denial with regards to interpersonal difficulties. In particular, people who have committed a potentially 'one-off' offence, such as intrafamilial homicide, may find it more difficult to come to terms with their own behaviour and actions, especially if the offence was manifest behaviour uncharacteristic of the individual. Furthermore, someone who has committed one offence, as opposed to a series of offences, may not identify themselves as 'an offender' and, as such, may have attempted to distance themselves psychologically from others around them who they perceive to be 'offenders'. In short, responses may be dependent on relative experience and surroundings.
These findings are reflected in the interpersonal profile locations for the HM Prison offence-related groups. The range of interpersonal problems reported by the 'GBH-level' group adds further support to the findings of Chapter 7, in that aggressive and violent behaviour can not be located specifically in one area of the Interpersonal Circumplex. Therefore, the differences between groups here could be considered to be characteristic interpersonal profiles of specific offence-related groups, within which there is some degree of variation. This further emphasises the roles of motivation and function in interpersonally violent offending behaviour.

The interpersonal problems reported among the Broadmoor offence-related groups differed from those of the HM Prison sample. Among this sample, the 'ABH-level' and 'Murder/manslaughter' groups reported the broadest range of interpersonal problems, particularly in relation to the 'Vindictive/Self-centred', 'Cold/Distant', and 'Socially Inhibited' scales. This is interesting as these scales are characteristic of a lack of communion with others, hostile attribution bias, and social anxiety, which can also be features of mental disorder. In particular, these scales have been found previously to correlate with antisocial and schizoid personality disorders, of which the latter is characterised by a pervasive pattern of detachment from social relationships (Horowitz et al., 2000). Unfortunately, the small numbers of offenders classified into these two groups in particular means that strong conclusions can not be drawn with this finding. However, although not significant, the 'Cold/Distant', 'Socially Inhibited' and 'Nonassertive' scales correlated moderately with the first discriminant function, which would have maximally separated the 'ABH-level and murder/manslaughter' group from the 'All offences' group. This indicates that the first group were characterised more strongly by difficulties with social interactions and expressing feelings to other people, social anxiety, detachment from social relationships, difficulty with feeling close to or being loving towards others, difficulties with self-esteem and assertiveness. However, these two offence-related groups also presented with the most varied interpersonal profiles, which were not characteristic of the principle of complementarity within the Interpersonal Circumplex. The variety of interpersonal problems reported among these groups is indicative of heterogeneity of interpersonal style. Therefore, these results can not conclude that these groups are characterised more by one interpersonal profile than another. There is the possibility that patients within these two groups under-reported the extent of their experience of interpersonal problems, particularly as they reported less difficulties on some scales than the non-offenders. This may reflect insight-related difficulties. However, the
diversity of offences committed within each of these two groups and the spread of scores across each of the interpersonal scales indicates that the classification of mentally disordered offenders into offence-related groups might not be a useful approach for informing our understanding of the interpersonal styles of some violent offenders. Furthermore, this highlights the heterogeneity of mentally disordered offenders and the potential difficulties of applying generic models to their offending behaviour.

The differences found among the Broadmoor sample offence-related groups indicate that, not only are there differences in interpersonal style between offence-related groups, there are also differences between comparable offence-related groups of mentally disordered and non-mentally disordered offenders in terms of interpersonal style. Therefore, the motivations for and functions of interpersonally violent behaviour are likely to be different between mentally disordered and non-mentally disordered offenders. This would suggest that treatment programmes developed for violent offenders for use in the Prison Service would need to be adapted for use with mentally disordered violent offenders.

8.6.2. Aggression, violence, agency and communion

There seems to be a clear utility in classifying offenders for research purposes on the basis of their offending history, as opposed to their most recent offence. Section 8.6.1. discussed the hypothesised role of a lack of communion with others, with reference to the interpersonal styles of interpersonally violent offenders. Within this chapter, 'Social estrangement' was selected as a measure of lack of communion with others. However, no differences between the offence-related groups of the HM Prison or Broadmoor samples on this scale were found. This might be indicative of a general level of social estrangement among these offence-related groups. However, given that social estrangement was most strongly predicted by the 'Socially Inhibited' scales among the HM Prison sample (section 6.6.2. of Chapter 6), it may be that there was not sufficient variation across offence-related groups to permit this level of association. Furthermore, analyses in section 5.4.1. of Chapter 5 indicate that the 'Dominance-Submission' axis of the Interpersonal Circumplex is stronger than the 'Coldness-Friendliness' axis among the non-offending volunteer and HM Prison samples. This is reflected in the group differences on the 'Domineering/Controlling' and 'Vindictive/Self-centred' scales in particular, suggestive of a more influential role of agency, rather than communion, in interpersonally violent behaviour.
Difficulties in relation to the over-interpretation of results in relation to the Broadmoor sample 'ABH-level' and 'Murder/manslaughter' groups have already been discussed. However, these two offence-related groups reported higher levels of self-efficacy than the 'All offences' group, in particular. One explanation for this might be that the 'All offences' group have a greater degree of insight into their abilities and are aware that they are unable to perform tasks and solve problems as easily or readily as they might like to be able to do. This might perhaps be due to having progressed through treatment programmes to address offending behaviour, as they might have been more readily identified for violent offender programmes due to their varied offending history. This finding lends some support to the work of Blackburn (1998a), in that general criminality may be associated with positive agency but, from the present results, it would appear that persistent and serious violence might be associated with negative agency. This adds further support to the findings in previous chapters that aggression and violence do not have one location in interpersonal space, but that violent offenders are heterogeneous, particularly in relation to motivation for offending. Furthermore, the present findings among this sample of mentally disordered offenders indicate that some violent offenders have poor general self-efficacy and that some have higher general self-efficacy; the extent to which this may be related to efficacy for offending behaviour is unclear. It is interesting that the 'ABH-level' and 'Murder/manslaughter' groups reported more physical aggression than the 'All offences' group, in particular. This suggests that consideration should be taken of the role of interpersonal violence in an individual's coping and problem-solving repertoire, particularly among those similar to the 'ABH-level' and 'Murder/manslaughter' groups. These people may find it particularly difficult to relinquish the use of aggressive or violent behaviour unless it is replaced by some other form of behaviour which is considered to be equally useful and functional for the individual.

Among the HM Prison sample, the results of the analyses of the 'Perspective taking' scale would appear to support previous research among North American university students (Richardson et al., 1994; Richardson et al., 1998). The higher self-reported perspective taking ability and relatively low physical aggression, verbal aggression, and anger among the 'Murder and non-interpersonal' group indicate that the ability to appreciate the perspective of another is relevant in the regulation of aggression among violent offenders. In particular, this may inform our understanding of the differences between individuals who have committed murder or manslaughter and
those who have committed a series of interpersonally violent offences to the exclusion of taking the life of another. Furthermore, the finding that the 'GBH-level' group scored significantly lower on this scale than the 'Murder and non-interpersonal' group suggests that perspective taking may also be related to the inhibition of an aggressive response. It would also appear that, among this 'GBH-level' group of violent offenders, the experience of anger may contribute towards impairment of empathic ability, as they scored significantly lower than the 'Murder/manslaughter and non-interpersonal' group on the 'Anger' scale. This would support previous research which suggested that negative emotional states, such as anger, may impair usual empathic skills (Pithers, 1999). However, the relative stability of perspective taking as the cognitive component of empathic ability suggests that high trait anger and poor perspective taking ability are persistent features of this group of offenders in particular. This would support previous research on 'angry aggression', in which the roles of cognition and emotion (specifically anger) become inter-dependent in the aetiology of aggressive behaviour (Averill, 1993; Novaco, 1993; Novaco and Renwick, 1998; Zillmann, 1988). The 'GBH-level' group also achieved a relatively high score on the 'Vindictive/Self-centred' scale of the Inventory of Interpersonal Problems-Circumplex Scales, of which the attribution of others' intentions as hostile is a feature. This is reflected in the work of Averill (1993) and Zillmann (1988), who proposed that a person's experience of anger justifies aggressive behaviour as a response to the perception of having suffered an injustice. The present results indicate that offenders whose interpersonal style is (partly) characterised by 1) a lack of concern for the safety and rights of others, and 2) a hostile attributional bias, also have difficulty taking the perspective of others, experience high levels of anger, and are frequently physically aggressive. The relatively high levels of self-reported problems on the 'Vindictive/Self-centred' scale across the 'ABH-level' and 'All offences' groups also might serve to explain the lack of difference between offence-related groups on the 'Hostility' scale. This indicates that individuals who have used violent behaviour also consistently attribute hostility to others' intentions and, as such, the frequency with which the aggressive acts are performed may be a function of the level of hostility experienced across all offence-related groups.

There were no significant differences between any of the Broadmoor offence-related groups on measures of empathic ability. One possible explanation for this is general cognitive impairment among this group of mentally disordered offenders. As such, there may be little difference between offence-related groups on measures of
cognitive ability, such as perspective taking. Although some of the offence-related groups were small, the findings of the present chapter further reinforce the heterogeneity of violent offenders. These differences are evident not only between offence-related groups, but also between different populations of violent offenders, so highlighting the complexity of violent and aggressive behaviour. Furthermore, it would appear that individuals with mental disorder who have committed interpersonally violent offences are different from those without mental disorder. This may be for a number of reasons, not least due to cognitive, emotional, and insight-related difficulties. However, the extent to which these may have been affected by therapeutic interventions is unclear.

The differences between the HM Prison sample offence-related groups on self-reported aggression are interesting. In particular, the differences between the 'ABH-level' and 'GBH-level' groups warrant some discussion. Both of these offence-related groups reported significantly more physical aggression than the other offence-related groups within the HM Prison sample. However, they differed from each other in levels of self-reported anger and verbal aggression. The findings indicate that offenders classified in the 'GBH-level' group have higher trait anger than other groups of offenders. Furthermore, the 'ABH-level' group reported the highest level of verbal aggression and significantly more than the 'Non-interpersonal' and 'Murder/manslaughter and non-interpersonal' groups. This is interesting, as it could be suggestive of escalation from verbally to physically aggressive behaviour among this group. The lower levels of self-reported verbal aggression among the 'GBH-level' group could be suggestive of the use of physical aggression as a first option, rather than verbal aggression. These are interesting distinctions, as it suggests that there are differences in terms of trait aggression between offenders who have committed interpersonally violent offences of differing levels of severity.

None of the Aggression Questionnaire scales correlated with the offence category of murder. This is also reflected in the findings that the 'Murder/manslaughter and non-interpersonal' offence-related group of the HM Prison sample self-reported significantly less trait aggression than the 'ABH-level' and 'GBH-level' groups. The distinctiveness of this group of offenders from others is more evident than the differences between the 'ABH-level' and 'GBH-level' groups, although reiterates that violent offenders are heterogeneous. The findings in this chapter suggest that this heterogeneity might be usefully managed within these offence-related groups. Given
that the people who have committed the offence of murder or manslaughter (to the exclusion of other interpersonally violent offences) reported significantly less trait aggression than the more prolific offenders who had not killed, it might be useful to consider placing these offenders in treatment programmes distinct from those who have committed interpersonally violent offences to the level of ABH or GBH. This would facilitate more specific identification of offence-related needs, which could then be addressed more effectively. Furthermore, whilst there are differences between the ‘ABH-level’ and ‘GBH-level’ groups in terms of trait aggression, the similarities might be sufficient as to permit both groups of offenders to receive treatment together. However, it would be prudent to be mindful of the differences in trait aggressiveness found in this chapter, which might be related to their offending behaviour.

The relationship between trait aggression and offending behaviour was more difficult to understand among the Broadmoor sample offence-related groups. As with the HM Prison sample groups, the ‘ABH-level’ and ‘GBH-level’ offence-related groups of the Broadmoor sample reported high levels of physical aggression. This might be indicative of a similar relationship between trait aggression and state violence, as was suggested from the findings of the HM Prison sample. However, the ‘Murder/manslaughter’ group among the Broadmoor sample is, once again, found to be different to their HM Prison sample counterpart. It would be interesting to explore this finding further with a larger sample of mentally disordered offenders. This may clarify whether there are real differences in terms of trait aggressiveness between mentally disordered and non-mentally disordered offenders who have committed murder or manslaughter, to the exclusion of other interpersonally violent offences. In the meantime, no firm conclusions can be drawn.

8.6.3. Summary
This chapter examined differences in interpersonal style between different groups of violent offenders. Differences were found between the groups of offenders, which also indicated that there were different motivations and functions of interpersonally aggressive and violent behaviour. Furthermore, it was demonstrated that different groups of violent offenders among the HM Prison sample could be discriminated on the basis of their characteristic interpersonal styles, most notably the ‘Domineering/Controlling’, ‘Vindictive/Self-centred’ and ‘Cold/Distant’ scales of the Inventory of Interpersonal Problems-Circumplex Scales (Horowitz et al., 2000). With a larger sample, discriminations between groups among the Broadmoor sample
might have been possible on the basis of interpersonal styles characterised by the 'Vindictive/Self-centred', 'Cold/Distant' and 'Socially Inhibited' scales of the Inventory of Interpersonal Problems-Circumplex Scales. This warrants further research.

Assessment of the extent to which aggressive and violent behaviour is motivated by concerns about agency and communion, as explored through measures of self-efficacy and social estrangement, were inconclusive. This may be reflective of high levels of social estrangement across all groups of offenders, and varying levels of self-efficacy. Differences in perspective taking ability were found between groups of violent offenders, indicative of the inhibitory role of perspective taking on aggressive behaviour. It would appear that the ability to assume another's perspective is also affected by high levels of anger, which is characteristic of people who have committed interpersonally violent offences to the level of GBH.

Finally, the relationship between self-reported aggressive behaviour and historical indices of violence was explored. This suggested that there was some association between trait aggressiveness and state violence, as indexed by offending history. The implications of this for treatment provision were discussed. The principal findings and implications from the present study are as follows:

- The exploration of the relationship between trait aggression and state violence contributed to the theoretical knowledge base of aggressive and violent behaviour. For some groups of offenders who have committed a range of violent offences, reported levels of trait aggressiveness were high, even some months or years after the most recent violent offence. The implications of aggression as an enduring characteristic are both theoretical and applied, but can inform the work of service providers for violent offenders.

- The differences in interpersonal styles between groups of violent offenders implicate differing motivations and functions of violent behaviour across these groups of offenders. These groups also differed in terms of self-reported aggression and perspective taking ability. This indicates that violent offenders are heterogeneous, but that they also differ in terms of treatment needs. There are clear implications of this for the treatment and management of violent offenders.
CHAPTER 9

General discussion

This thesis was concerned with understanding some of the individual difference factors associated with interpersonal violence amongst non-offending and violent offending groups of men. In particular, it examined the utility of the Interpersonal Circumplex as a framework within which to explore the extent to which interpersonally violent behaviour is motivated by concerns about both positive and negative agency and communion.

A good circumplex structure was generated, and appeared to be organised by the principles of agency and communion, as indexed by self-efficacy and social estrangement. This provided a good structural basis within which interpersonal style across samples and groups of offenders could be explored, and contributed towards our understanding of the motivation and function of interpersonally aggressive and violent behaviour, highlighting differences in treatment need both across and within samples of offenders. The use of interpersonally aggressive and violent behaviour would appear to serve an inherent communicative function, with more context-related motivations being identified through an examination of specific interpersonal styles. The variation in interpersonal style across samples and offence-related groups was suggestive of a need for theory-driven treatment development within specific populations, as opposed to the application of generic treatment models across populations.

9.1. Theoretical contributions

The utility of the Interpersonal Circumplex as a framework within which to further our understanding of aggressive and violent behaviour was demonstrated. Previous research located interpersonal problems (Alden et al., 1990), covert reaction tendencies (Kiesler et al., 1997) and emotions (Plutchik, 1997) within the same conceptual space as interpersonal behaviour. This thesis located the general position of violent and aggressive behaviour within the Interpersonal Circumplex, which provided a good theoretical basis within which to explore interpersonally aggressive and violent behaviour. Chapter 7 found that the location of such behaviour within the Interpersonal Circumplex was generally consistent with that presented in previous
research (e.g. Anderson, 2002; Blackburn, 1998a). Furthermore, the spatial representations of aggression within the Interpersonal Circumplex reflected the social interactionist perspective of aggressive and violent behaviour, giving agency to the actor in coercive social influence (Tedeschi and Felson, 1994).

However, by approaching violence and aggression as interpersonal behaviours, the procedure of locating such behaviours in just one area of the interpersonal model was considered restrictive, both in relation to theoretical considerations of the utility of the Interpersonal Circumplex, and in 'real world' terms of the variety of applications and functions of the behaviour. Therefore, the theoretical value of the Interpersonal Circumplex was taken full advantage of to reveal broader themes relating to the motivations and functions of aggressive behaviour. It is not possible to ascertain the extent to which the communicative function of aggressive and violent behaviour is the most apparent among violent individuals. However, it can be said that communication would appear to be some form of inherent function of aggressive and violent behaviour, related to individual differences in interpersonal style and motivation.

This notion of aggressive and violent behaviour as a form of communication is partly supported by previous research by Lindsay and Anderson (2000), in which high trait hostility was associated with a desire to escape even relatively neutral situations, indicative of low efficacy beliefs. The finding in Chapter 7 of this thesis that high trait hostility was characteristic of both samples of offenders might be indicative of the adoption of an aggressive response in reaction to the inability to escape from a situation. This context might be physical or psychological, but it would appear that neither is more important than the other.

The extent to which agency is a true organising principle of the Interpersonal Circumplex within the framework of the Inventory of Interpersonal Problems-Circumplex Scales (Horowitz et al., 2000) was questioned in Chapter 6 of this thesis. The selected measure of personal agency was not associated with the theoretical location of 'Domineering/Controlling', which led to the consideration that positive agency could only be measured to a certain point. Therefore, the extent to which a high score on the 'Domineering/Controlling' scale (theoretically reflective of high personal agency) measures a greater degree of positive agency than a low score on the same scale is debatable. Perhaps a more representative description of a high score on this scale would be self-orientation (as opposed to other orientation).
However, the geographically opposed scale of 'Nonassertive' does not strictly represent the conceptual opposite of this. Therefore, there is only limited support from this thesis that interpersonal behaviour is organised by the interpersonal theoretical principles of agency and communion. Whilst measures of such principles are useful for informing the relationships between interpersonal style and interpersonal behaviour, the theoretical 'blends' of such styles are called into question.

This thesis has both supported and refuted existing theoretical perspectives of aggressive and violent behaviour. The finding in Chapter 7 that physical and verbal aggression can occur independently of the experience of anger (for some people) does not support the theories of aggression and violence as being affect-based. For example, Berkowitz's (1993) cognitive neoassociationism model of aggression describes negative affect as the antecedent to the 'fight or flight' response. Although only one negative affect (anger) was measured in relation to aggressive behaviour in this thesis, evidence was found for the use of aggressive and violent behaviour in situations without the experience of anger. However, evidence was also presented in support of the role of anger in the antecedents of aggressive and violent behaviour, most notably in relation to the effects of high levels of arousal on cognitive processes. This supports the work of Zillmann (1979; 1988) and emphasises the role of social cognition in aggressive and violent behaviour. In particular, evidence was presented in this thesis for the importance of the roles of hostile attributional bias and self-efficacy in the evaluation of social contexts and the aetiology of violence.

An important theoretical and methodological contribution to the knowledge base of violence is the apparent relationship between self-reported trait aggression and state violence, as indexed by offending history. This association has implications for incorporating measures of trait aggression into the process of assessment of risk for future violent behaviour, amongst some groups of people. However, this relationship warrants further exploration in future research. This thesis has begun to identify that levels of trait aggression and self-reported interpersonal problems differ for some groups of violent offenders, and that interpersonal style and aggression are related. Therefore, it is possible that aggression may be a more enduring characteristic for some offenders than others. In Chapter 8, groups for which this might be a critical factor were identified. As such, it would seem that consideration of both offending
history and current levels of self-reported aggression are important considerations in the development of our theoretical understanding of violence.

9.2. Applied contributions
This thesis presented evidence for differences in interpersonal style and self-reported aggression between non-offenders and two samples of offenders (Chapter 7), as well as between groups of violent offenders (Chapter 8). Furthermore, the research presented in Chapter 8 indicated that specific interpersonal characteristics were able to discriminate between some groups of violent offenders which varied in their interpersonally violent offending history. This has implications for the treatment and management of violent offenders, particularly as offenders with differing interpersonal styles also differ in terms of the function of aggressive and violent behaviour. Often, violent offenders are grouped for treatment purposes as a homogeneous group. Given that this thesis has highlighted that violent offenders with differing offending histories also differ in terms of interpersonal style, it might be useful to consider grouping offenders with similar interpersonal styles in order to tailor treatment to target these specific needs. For example, the findings of this thesis suggest that people who have received a conviction for murder or manslaughter (to the exclusion of other interpersonally violent offences) have different treatment needs from those who have an extensive history of the use of interpersonally aggressive and violent behaviour. There is also some evidence to suggest that placing violent men with shared experiences in the same treatment group facilitates group cohesion (Duncan, 2001). Therefore, it could be useful to consider that shared interpersonal styles, functions, and motivations of interpersonally violent offenders might together produce more effective group treatment outcomes.

This thesis also generated normative values amongst a sample of British adult males. Potential cross-cultural differences were found on the measure of self-reported aggression, so it was considered especially important to establish baseline measures of physical and verbal aggression, anger, and hostility amongst a UK sample. In addition, differences in the expression of aggression between males and females emphasised the importance of generating normative values among a sample of males. This was also relevant to self-reported interpersonal problems, which were explored in relation to motivational aspects of aggressive and violent behaviour. The benefit of having normative values for different populations is to assess relative difficulties. The values generated in this thesis could provide a useful basis for
measurement of deviation from both other populations (for example, HM Prison sample as being different from the non-offending volunteer sample) and within populations (for example, offenders with an extensive history of interpersonal violence, compared with those with one or two offences), although the apparent heterogeneity within some offence-related groups might restrict such comparisons.

The differences between samples and offence-related groups not only highlighted differences in treatment need, but also the need for the generation of population-specific theoretically-driven treatment programmes. For example, the differences between the HM Prison and Broadmoor samples suggest that group treatment programmes, in particular, which are applied to patient populations, might be more effective if adapted from those generated within the Prison Service.

The measures adopted for the purposes of this thesis have demonstrated good reliability and theoretical consistency across samples and groups of offenders. Therefore, it would appear that these measures could be usefully employed among offender populations. Furthermore, the data generated from this thesis could provide values against which future samples of prisoners and mentally disordered offenders could be compared. There might also be some utility in the adoption of these measures pre- and post-treatment. In particular, the Inventory of Interpersonal Problems-Circumplex Scales (IIP-C; Horowitz et al., 2000) could measure relative change in interpersonal style. In accordance with the circumplex principle of vector length, a high score on any one of the scales of the IIP-C is indicative of extreme characteristics. Therefore, an individual who achieved a high score on the ‘Vindictive/Self-centred’ scale, for example, would be unlikely to move across the circumplex to achieve a high score on ‘Overly Accommodating’. More realistically, a treatment target would be to lessen the intensity and frequency of interpersonal problems characterised by the ‘Vindictive/Self-centred’ scale, and to bring the score within the normal range. As such, an individual who is strongly characterised by one scale will have fewer available resources to be flexible in interpersonal interactions across situations. For example, an individual who achieves an average score across each of the interpersonal scales would be more able to move between these interpersonal styles and adapt according to a range of interpersonal situations. Therefore, the utility of this measure in a treatment context might be to monitor the relative rigidity or flexibility of an individual’s interpersonal style and to inform
understanding of the motivations and functions of behaviour within the context of this interpersonal style.

9.3. Methodological considerations and limitations
A principal limitation of the findings of this thesis relates to the extent to which such findings can be generalised across populations. Specifically, this thesis contributes to our understanding of interpersonally aggressive and violent behaviour among men who have committed interpersonally violent offences, to the exclusion of those who have committed sexual offences or set fires. As such, these findings might not be applicable to females or to male offenders who have used interpersonal violence within sexual or fire-setting contexts. Further sample and methodological considerations will be discussed extensively in turn.

9.3.1. Sample considerations
The generation of comparably-sized samples was not an objective of this thesis. Therefore, it was anticipated that fewer participants would comprise the HM Prison sample than the non-offending volunteer sample, and that the Broadmoor sample would have the least members. Reasons for such expectations included the relative sizes of the populations to be sampled, and the difficulties associated with conducting research within forensic populations. As such, the Broadmoor sample is probably the most representative of its relative sampling pool, although is also the most restrictive in terms of conclusions which can be drawn from statistical analyses. This was considered during analyses presented in Chapters 5, 6, 7, and 8 of this thesis and, at all times, attempts were made to be cautious about the over-interpretation of results relating to the Broadmoor sample, in particular. With the provision of further resources, it is possible that additional participants could have been recruited to the non-offending volunteer sample, and that this could have been weighted statistically to more accurately reflect the demographic characteristics of the general British male population. However, it is not known to the author if any such data exist which do not include men who have received criminal convictions. Furthermore, the size of the non-offending volunteer sample in this thesis was considered sufficient to be able to achieve the objective of generating a circumplex structure (as suggested by Wiggins et al., 1988) within which to explore differences in interpersonal style between groups of violent men. Therefore, further recruitment was not considered necessary, for the purposes of this thesis.
By the nature of voluntary participation, research participants are those who are more willing to engage in the process and may adopt more ‘other-orientated’ attitudes than their non-participating counterparts. Therefore, the results presented in this thesis may represent the more motivated, ‘social’ individuals, rather than the more ‘anti-social’ people, some of whom may have had more extensive histories of the use of interpersonally violent behaviour. Although a range of interpersonal problems were reported across each of the three samples, the extent to which the non-participants might have differed in terms of interpersonal style and trait aggressiveness is unknown.

The non-offending volunteer sample was partly generated from an internet recruitment strategy. The extent to which these respondents differed from other non-offending volunteers was explored. Whilst it could be anticipated that differences between those recruited on-line or via word-of-mouth might differ in terms of interpersonal style, no significant differences were found. This is encouraging for other researchers using on-line methodologies, as it suggests that respondents can form a cohort resembling those recruited through more traditional methods; such as paper and pencil completion of questionnaire batteries.

Within the data which were collected, the samples may have been skewed by social desirability bias. Although all responses among the non-offending volunteer and HM Prison samples were anonymous, some people may have preferred not to endorse items relating to interpersonal problems and potentially anti-social behaviour. It is interesting to consider that some people with good levels of insight into their behaviour and difficulties with others might not want to share these problems with other people, even anonymously. As such, they may choose not to participate at all. Furthermore, some people with poor insight might be happy to endorse problems, although perceive themselves as having fewer difficulties than would others. Therefore, the present samples might be skewed towards those with a lack of insight and who perceive themselves as having fewer difficulties related to interpersonal interactions and aggressive and violent behaviour. This might be particularly relevant to the sample of mentally disordered offenders, whose responses to assessments are often scrutinised in detail in the context of multidisciplinary clinical team meetings.

The role of cognitive impairment in the aetiology of aggressive and violent behaviour and the prevalence of this among offender populations were discussed in Chapter 3.
Clearly, there are implications of this for the completion of psychometric tests among the HM Prison and Broadmoor samples, particularly in relation to maintaining attention throughout the completion of the battery and having cognitive skills sufficient to be able to reflect on the questionnaire items. The potential effects of this were minimised to some extent among the Broadmoor sample, for which the researcher was present throughout completion of the test battery. Therefore, the instructions for completion of the questionnaires were made explicit to the patient, and opportunities for further clarification were provided. It was not feasible to adopt this method of data collection among the HM Prison sample, so the extent to which attentional difficulties might have affected completion of the questionnaires among this sample is less clear. Furthermore, the extent to which medication might have affected cognitive ability was not controlled for. Whilst this might have controlled most positive symptoms of mental illness, the effects of this on concentration and attention could have had a detrimental effect on the general cognitive ability of the participant.

The nature of the patient group within Broadmoor Hospital, all of whom have been violent towards themselves or others, is useful for examining the relative contribution of mental disorder to aggressive and violent behaviour. The differences between the HM Prison and Broadmoor samples offence-related groups suggest that mental disorder may contribute towards differences in interpersonal style and trait aggressiveness, in particular. However, within this thesis it was not possible to control for the effects of mental disorder on either offending history or trait aggressiveness. A further factor to consider in relation to the Broadmoor sample is that, under the rubric of mental disorder within this population, individuals might be classified as having either Mental Illness or Psychopathic Disorder (under the Mental Health Act 1983). There is a qualitative difference between the relative stability of interpersonal functioning between people within each of these categories, which was not assessed within this thesis. Whilst difficulties within both are considered to be relatively stable individual characteristics, the dynamic nature of mental illness may compromise the consistency of interpersonal functioning. For example, the cognitive functioning of someone who is experiencing positive symptoms of mental illness may be more chaotic and disorganised for the duration of the psychotic episode than at times when the psychosis is well-managed. Therefore, someone who commits a violent offence during such an episode may not temporarily possess the cognitive resources necessary to function in a way that is characteristic of their interpersonal style. For such an individual, whilst it would be difficult to draw firm conclusions regarding the
relationship between state violence (as indexed by offending history) and interpersonal style, the relationship between trait aggressiveness (as indexed by a self-report measure) and interpersonal style would remain constant. This suggests that the relationship between offending history and interpersonal style may not be as clear among this mentally ill sub-group as for the patients classified as Psychopathic Disorder or the HM Prison sample. In addition, this may contribute to the relative lack of significant differences in interpersonal style between the Broadmoor sample offence-related groups, where their HM Prison sample counterparts reported such differences. One reason for this might be that the offences committed by the offenders classified under the Mental Illness category were behaviours inconsistent with their characteristic interpersonal style. This would also account for the apparent heterogeneity both within offence-related groups and among the Broadmoor sample more generally.

The prevalence of personality disorder amongst violent offenders was discussed in Chapter 3. Whilst part of the Broadmoor sample were legally classified under the Mental Health Act 1983 category of Psychopathic Disorder, this encompasses a variety of disorders of personality which feature 'anti-social' behaviours. The distinction between whether people are in a high security hospital or within the Prison Service would appear to be arbitrary, and is related to the extent to which an individual is considered to be 'treatable' under the terms of the Mental Health Act 1983. Furthermore, an individual's placement in a high security hospital might first be dependent on whether problems are identified within the Prison Service and a referral is made to a high security hospital. Therefore, the extent to which there is some degree of overlap of mental disorder between the HM Prison and Broadmoor samples is unclear. Whilst the likelihood is that the two forensic samples could be treated as distinct, there is the possibility that they differ in terms of location only.

9.3.2. Methodological considerations

It was not within the scope of this thesis to explore differences between individual responses on self-reported interpersonal problems, aggression, and specific individual difference factors. Rather, comparisons were made between the two offender groups and a sample of non-offenders, and also between differing offence-related groups. This group comparison approach masks individual differences, but it is acknowledged that such exist. Although statistical screening for outliers was performed, this would not account for individuals who are 'outliers' in terms of their
'unusual' relationships between variables. For example, an individual who has an extensive history of the use of interpersonal violence and who also has very good perspective taking skills and does not report interpersonal problems characterised by the 'Vindictive/Self-centred' scale may not be highlighted as a statistical outlier on the basis of their scores on these variables. However, the relationship between these variables may be considered to be an 'outlier' when compared to the responses across other sample members. Therefore, this individual may 'skew' genuine between-group differences. This possibility is perhaps best illustrated by the range of findings within the Broadmoor sample, which suggest that this is a vastly heterogeneous group of people. Some contributions to this heterogeneity were discussed in section 9.3.1., but these findings could also be due to individual differences. Closer analyses of the individual members of the sample might have highlighted trends in the way in which mentally disordered offenders' interpersonal styles are related to levels of self-reported aggression and their offending history; it may be that certain outliers in this sample have masked these trends.

Within the HM Prison and Broadmoor samples some members have received treatment with the intention of addressing insight-related difficulties with regards their offending history. In particular, some offenders within the HM Prison sample were also members of a therapeutic community, which specifically focuses on the consideration of others throughout their stay at the Unit. In addition, all offenders within the Broadmoor sample would have been considered 'treatable' under the terms of the Mental Health Act 1983, and therefore would have received varying degrees of psychological input as part of their treatment pathway throughout the Hospital. The extent to which the psychological work which these two groups of people (in particular) might have impacted on their responses to the questionnaires adopted in this thesis can not be discounted. Furthermore, as discussed in section 9.2., it is possible that therapeutic interventions could have impacted on an individual's interpersonal style, specifically in relation to the relative intensity of such styles. However, it was not possible to account for this potentially confounding variable within this thesis. Some of the reasons for this are that 1) the HM Prison sample responses were anonymous and it was therefore not possible to ascertain what, if any, psychological work the respondents had completed (or what the outcome of such work might have been), and 2) many of the Broadmoor patients had moved between institutions of differing levels of security throughout the country and it was not always possible to track the breadth and depth of previous psychological
interventions. All responses across questionnaire items were relative to each other, so the impact of therapeutic interventions at the individual level would not necessarily be manifest in self-reported difficulties across scales. However, the relationship between offending history and self-report may be more likely to have been influenced by therapeutic input. This contributes to our understanding of the ‘All offences’ group (within both the HM Prison and Broadmoor samples) as having reported fewer interpersonal problems and difficulties with aggressive behaviour than people classified into groups of lesser severity of interpersonal violence. One could speculate that individuals with more extensive histories of severe interpersonal violence might be more likely to receive therapeutic interventions to address possible insight-related difficulties regarding their offending behaviour, in order to reduce future risk of repeating such behaviour.

There are differences in the way in which offending history was captured among the HM Prison and Broadmoor samples. Among the HM Prison sample, participants were asked to self-report their history of convictions by ticking an offence-category box (for example, ‘sexual offences’, ‘theft’). It is possible that this could have been both over- or under-reported. Possible factors that could have contributed to this are (anti-)social desirability bias, cognitive deficits, and shame. Therefore, it can not be ruled out that some members of this sample had committed sexual offences, but chose not to disclose this information. Offending history among the Broadmoor sample was collated from case files, all of which included forensic history compiled from Criminal Justice records. As such, the validity of this data collection method is quite robust and reflective of the range of conviction history. However, the nature of the Hospital environment as having a purpose of rehabilitation means that some of the Broadmoor sample may have used interpersonally violent behaviour within this environment which, in a non-high-secure hospital, would have resulted in criminal prosecution. Therefore, the extent to which the history of convictions is fully reflective of the breadth and depth of the use of interpersonally violent behaviour needs to be considered.

Whilst the methodology adopted in this thesis captured a range of interpersonally violent behaviour, it was not possible to assess the frequency of such behaviours. Reasons for this include many of those described above, in addition to the reality that people probably commit more offences than those for which they are convicted. Furthermore, many offenders would have perpetrated interpersonal violence in
contexts within which they would have evaded the attention of the Criminal Justice system. For example, using interpersonal violence within the context of a disagreement among friends, peers, or gang members might not have attracted attention as would the use of this behaviour in the context of a public assault on a stranger.

Within this thesis, the legal classification of the offence was used to differentiate offence-related groups. This categorical method may not be fully reflective of the level of interpersonal violence used. Although some assessment of the relative severity of the behaviour within a specific context is made through the legal process, similar behaviours across individuals and situations might not be classified consistently. For example, legal classifications of interpersonally violent offences such as 'wounding with intent', 'GBH', 'ABH', and 'attempted murder' might be determined through negotiations between defence and prosecution legal representatives. Therefore, these classifications may not fully reflect a continuum of the severity of interpersonal violence used.

9.4. Reflection
Given that this thesis was concerned with interpersonal style amongst groups of people who had committed interpersonally violent offences, it is important to reflect on the impact of inviting offenders to participate in research conducted by someone who has liberty and some perceived level of control and power over that individual. Specifically, how an offender interacts with an external visitor who enters their living environment with physical tools (i.e. keys) to exit, whom they perceive to have professional knowledge and no apparent incentive to provide immediate gain or obvious benefit to the participant is something that must be considered in relation to research into interpersonal interactions. There is an inherent power differential in this type of interpersonal interaction. Interpersonal theory assumes that dominant behaviours invite submissive behaviours and that friendly behaviours invite reciprocal interactions. Therefore, it is possible that, on reflection, those offenders who volunteered to participate may have interpersonal styles which are more 'submissive', rather than 'dominant'. It is likely that responses amongst such populations to questionnaires administered as part of research would be consistent regardless of who was conducting the research. However, as the researcher was female, entering a male environment, the extent to which this factor influenced decisions to participate and subsequent response styles is unclear. These reflections would be more relevant
to the Broadmoor sample, as questionnaire batteries were completed in the presence of the researcher. The HM Prison and non-offending volunteer samples responded anonymously, without a direct interpersonal interaction. Therefore, the sample generation was less likely to be influenced by the factors discussed above.

Given that the reporting of aggressive behaviour would be widely regarded as socially unacceptable, it is possible that participants in this thesis may have underreported their use of aggressive behaviour. This may have been particularly pertinent for the non-offending volunteer sample, especially if people were concerned about the relative anonymity of their responses and the possibilities of the researcher being able to 'investigate' peoples' responses. However, it was anticipated that across the different samples, there would be differences in the extent to which the endorsement of aggressive behaviour would be more or less socially acceptable. For example, the threshold for socially acceptable aggressive behaviour might be higher amongst those who use the behaviour frequently. Therefore, the level at which these people might be willing to endorse socially 'unacceptable' levels of aggressive and violent behaviour might be different to that of people who do not use interpersonally violent behaviour. However, the responses across each of the samples would be relative to each other and, therefore, the extent to which socially acceptable or unacceptable responses were endorsed across each of these would be reflective of the population from which they are sampled.

An additional consideration is the participants' perceived utility of the recorded responses and the subsequent dissemination of these. Although it was made clear to participants among the HM Prison and Broadmoor samples that the research would not be used clinically, and would remain confidential, there may not have been a mutual understanding of what the participant and researcher considered confidentiality to be. For example, Broadmoor patients are most familiar with a process of care-planning approach, in which information from a variety of sources are used to contribute towards risk assessment. This multidisciplinary input includes social workers, nursing staff, psychiatrists, psychologists, and occupational therapists, but the patient might not always be fully aware of how information shared with these disciplines effectively contributes towards their risk assessment and how much of this information remains truly 'confidential'. Given this complexity, it is possible that, whilst a patient agrees to the terms of confidentiality of the research contract, they may still feel that this information may contribute towards their risk
assessment. In addition, the issue of clinical versus research confidentiality needs to be reflected upon when working with patients in Broadmoor. Clinical confidentiality is generally compromised if a patient discloses information which suggests that either themselves or others may come to harm. Given that this research is interested in self-reports of aggressive behaviour, a patient may, at some level, be concerned as to whether any of their disclosures will need to be shared with their clinical team. This is minimised to some extent by the use of a structured, questionnaire methodology in this thesis, although concerns were still reported among the Broadmoor sample, in particular.

An important theoretical reflection is related to the theoretical approach adopted throughout this thesis. Many of the findings discussed in earlier chapters have been discussed in relation to the interpersonal theoretical framework and the Interpersonal Circumplex. It is acknowledged that other interpretations of these data might be plausible, but that the researcher was interested in the potential relative contribution of the interpersonal theoretical framework to the understanding of aggressive and violent behaviour. Therefore, it is possible that interpretations might have appeared restrictive at times, particularly to readers affiliated to perspectives other than the interpersonal. However, the reader is reminded that this thesis was concerned with understanding some of the individual difference factors which are associated with interpersonal violence amongst non-offending and violent offending groups of men. Furthermore, the reader is reminded that previous research identified violent behaviour as being located in one specific area of the Interpersonal Circumplex. This thesis has demonstrated flexibility in the use of this approach and has endeavoured to explore aggressive and violent behaviour throughout the interpersonal theoretical framework. However, the consideration that alternative theoretical perspectives might have been interesting to consider in relation to the findings of this thesis is recognised.

9.5. Future research

In order to account for the relative potential contribution of mental illness within the Broadmoor sample, in particular, it might be useful to distinguish between the Mental Health Act 1983 classifications of Mental Illness and Psychopathic Disorder in any future research adopting a similar methodology. In addition, it might also be useful to consider further separation of the offenders classified as Psychopathic Disorder into DSM-IV (or equivalent) diagnostic sub-groups. There are differences in interpersonal
style between people with (for example) borderline personality disorder and anti-social personality disorder (Benjamin, 2003), and it might be useful to further explore these specific interpersonal styles in relation to offending history and trait aggressiveness in order to tailor treatment needs specific to these groups of people.

The findings in relation to psychological estrangement, particularly existential estrangement, were interesting, and warrant further exploration in relation to trait aggressiveness and interpersonally violent behaviour. This might best be approached through qualitative methodologies, which could more adequately reflect the individual experiences of estrangement and how this relates to other correlates of aggressive and violent behaviour.

This thesis was concerned with interpersonal style amongst males both with and without histories of interpersonally violent offences, to the exclusion of offenders who had received convictions for sexual offences or fire-setting. Whilst the present findings are restricted in their generalisability to males, replication of this work with samples of female offenders would be useful to both inform treatment needs and further our understanding of the expression and function of violence amongst women. Previous research has identified the characteristic interpersonal styles of groups of sexual offenders (Anderson, 2002), but it would be interesting to explore the interpersonal styles of fire-setters also, particularly as there is some research which suggests that fire-setting also has a communicative function (Geller, 1992). In addition, it would be interesting to explore the inter-relationships between aggression and interpersonal style amongst offenders with histories of sexual offending and setting fires, to explore how they may differ from the samples of violent offenders in this thesis. Again, this would be particularly interesting amongst a sample of fire-setters, whose offending behaviour is not always directly interpersonal. As such, it may not be possible to account for fire-setting within the Interpersonal Circumplex.

A theme running throughout this thesis is complexity. This has been discussed in relation to the concept of violent behaviour, the relationship between this and interpersonal style, and the nature of the forensic samples which participated in this research. Therefore, tentative interpretations of the findings presented herein, as well as the limitations discussed in this chapter, indicate that it might be useful to explore further in future research the interpersonal styles of groups of violent offenders and to understand the relationships found within this thesis. In particular, it would be useful
to explore in more detail the relationships between interpersonal style, aggressive behaviour and offending history at the individual level. Such aims might best be addressed through the use of qualitative methodologies, which could explore in more detail an individual's interpersonal style in relation to the context within which aggressive and violent behaviour is utilised, an offender's attributions to another's intentions, and an individual's motivations to adopt aggressive and violent behaviours within interpersonal interactions. Furthermore, an investigation of such processes within the interpersonal theoretical framework would facilitate an understanding of what violence 'means' to the perpetrator and, in so doing, illustrate the motivations and functions of the behaviour. Such an approach would contribute towards an understanding of the functions and motivations of aggressive and violent behaviour from the perspective of the perpetrator, and would further inform treatment needs.

9.6. Conclusions
This thesis applied an interpersonal theoretical framework to interpersonally violent behaviour, contributed towards the theoretical understanding of violence and informed treatment need amongst British male violent offenders. As a result of exploration of the structural and theoretical strength of the Interpersonal Circumplex, the principles of circumplexity were satisfied and relative stability of the interpersonal domain was demonstrated. The Interpersonal Circumplex organising principle of communion was reflected in a measure of social estrangement, although it was not possible to make firm conclusions about the role of agency as the other such principle. However, the associations of self-efficacy and social estrangement to the structure of the Interpersonal Circumplex add to the psychological understanding of interpersonal behaviour.

Whilst the location of aggressive behaviour within interpersonal theoretical space was achieved, such relative specificity did not fully take advantage of the framework within which it was located. Therefore, the theoretical inter-relationship between interpersonal style and self-reported aggression was also explored, suggestive of violent and aggressive behaviour as having an implicit communicative function. Results indicated that explicit functions for such behaviour might be more closely associated with overt interpersonal style.

The adoption of a correlational design restricted interpretations of the associations between interpersonal style and aggressive and violent behaviour, although some
important points for consideration in the treatment of violent offenders were highlighted. Specifically, the differences between violent offenders in terms of interpersonal style and self-reported aggression suggest that they may have differing treatment needs. For example, results suggest that the needs of an individual in the HM Prison sample who had received a conviction for murder or manslaughter and who reported relatively low levels of aggression would differ to someone within the same sample who had received a range of convictions for interpersonal violence up to the level of GBH. In addition, the relative consistency of an aggressive response amongst those offenders who report high levels of trait aggression indicated that there is specific treatment required to address this need amongst some groups of violent offenders.

The finding that some groups of violent offenders (particularly the ‘ABH-’ and ‘GBH-level’ groups of the HMP sample) self-reported higher levels of trait aggression and specific interpersonal problems indicated that interpersonal style and aggression might be inter-related. As such, the exploration of levels of trait aggressiveness in conjunction with interpersonal style might be a useful approach in addressing an individual's core beliefs and schemas about the use of violence, particularly in relation to replacing violent behaviour with an appropriate other which serves a similar interpersonal function. In addition, this potential link between interpersonal style and aggressive and violent behaviour suggests that a multi-directional approach to the treatment of violent offenders might be useful. As such, rather than adopting an approach to treatment which focuses predominantly on an individual's aggressive or violent behaviour, the results of the present research suggest that it might be prudent to consider an individual's interpersonal style in conjunction with this. Whilst this thesis does not claim that this would be the optimal treatment approach, it does suggest that interpersonal style - and its relationship to aggressive and violent behaviour - might be another factor which would be useful to consider in the treatment of violent offenders. Furthermore, in relation to the assessment of treatment outcome, a shift in an individual's interpersonal style might also reflect a shift in their readiness to adopt interpersonally violent behaviour.

This thesis has highlighted the complexity and multifarious nature of violent behaviour. An individual's characteristic interpersonal style can not explain aggressive and violent behaviour in its entirety, but does seem to be able to increase our understanding of the phenomenon that is violence.


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APPENDIX 1

DSM-IV diagnostic criteria
DSM-IV (American Psychiatric Association, 1994) diagnostic criteria for antisocial personality disorder p.649-650

A. There is a pervasive pattern of disregard for and violation of the rights of others occurring since age 15 years, as indicated by three (or more) of the following:

1) Failure to conform to social norms with respect to lawful behaviours as indicated by repeatedly performing acts that are grounds for arrest
2) Deceitfulness, as indicated by repeated lying, use of aliases, or conning others for personal profit or pleasure
3) Impulsivity or failure to plan ahead
4) Irritability and aggressiveness, as indicated by repeated physical fights or assaults
5) Reckless disregard for safety of self or others
6) Consistent irresponsibility, as indicated by repeated failure to sustain consistent work behaviour or honour financial obligations
7) Lack of remorse, as indicated by being indifferent to or rationalising having hurt, mistreated, or stolen from another

B. The individual is at least age 18 years
C. There is evidence of Conduct Disorder ... with onset before age 15 years
D. The occurrence of antisocial behaviour is not exclusively during the course of Schizophrenia or a Manic Episode

DSM-IV (American Psychiatric Association, 1994) diagnostic criteria for borderline personality disorder p.654

A pervasive pattern of instability of interpersonal relationships, self-image, and affects, and marked impulsivity beginning by early adulthood and present in a variety of contexts, as indicated by five (or more) of the following:

1) Frantic efforts to avoid real or imagined abandonment. Note: Do not include suicidal or self-mutilating behaviour covered in Criterion 5
2) A pattern of unstable and intense interpersonal relationships characterised by alternating between extremes of idealisation and devaluation
3) Identity disturbance: markedly and persistently unstable self-image or sense of self
4) Impulsivity in at least two areas that are potentially self-damaging (e.g. spending, sex, substance abuse, reckless driving, binge eating). Note: Do not include suicidal or self-mutilating behaviour covered in Criterion 5
5) Recurrent suicidal behaviour, gestures, or threats, or self-mutilating behaviour
6) Affective instability due to a marked reactivity of mood (e.g. intense episodic dysphoria, irritability, or anxiety usually lasting a few hours and only rarely more than a few days
7) Chronic feelings of emptiness
8) Inappropriate, intense anger or difficulty controlling anger (e.g. frequent displays of temper, constant anger, recurrent physical fights)
9) Transient, stress-related paranoid ideation or severe dissociative symptoms
APPENDIX 2

Letters of ethical approval
20 August 2003

Ms Emily Glomey
Department of Psychology
School of Human Sciences

Dear Ms Glomey

Exploring violence from the perspective of the perpetrator: An interpersonal communication? (ACE/2003/61/Psych)

I am writing to inform you that the Advisory Committee on Ethics has considered the above protocol (and the subsequent information supplied) and has approved it on the understanding that the Ethical Guidelines for Teaching and Research are observed. For your information, and future reference, these Guidelines can be downloaded from the Committee’s website at http://www.surrey.ac.uk/Surrey/ACE/.

This letter of approval relates only to the study specified in your research protocol (ACE/2003/61/Psych). The Committee should be notified of any changes to the proposal, any adverse reactions, and if the study is terminated earlier than expected, with reasons.

Date of approval by the Advisory Committee on Ethics: 20 August 2003
Date of expiry of approval by the Advisory Committee on Ethics: 19 August 2008

Please inform me when the research has been completed.

Yours sincerely

Catherine Ashbee (Mrs)
Secretary, University Advisory Committee on Ethics

cc: Chairman, ACE
    Dr E Lyons, Supervisor, Dept of Psychology
Dear Ms Glomey,

Re: Application to undertake research in HM Prison Service

I am writing with reference to the above.

I have now had the opportunity to consult on and review your resubmission. I am pleased to be able to support your application subject to the agreement of operational managers at establishment level and subject to the following:

- That the Prison Service receives a copy of the University of Surrey ethical approval
- That the Prison Service receives a copy of the completed dissertation and copies of any published papers based on the research

May I take this opportunity to wish you well with your research.

Yours sincerely,

David Crighton
Deputy Head of Psychology
19 September 2003

Miss Emily Giomey  
Department of Psychology  
School of Human Sciences  
University of Surrey  
Guildford  
Surrey GU2 7XH  

Ref: 12 JUL 03  

Dear Miss Glomey  

**Re: Violence: An interpersonal communication?**  

Thank you for your letter of 8th August 2003.  

The Committee is happy to approve your project. However, as you are now planning to use a new scale – the IIP-C – the Committee would be grateful if you could confirm that you have obtained or have made arrangements to obtain the appropriate statistical advice on the amended project.  

Please note that acceptance of your proposal has been given on condition that the Administrator receives six monthly reports, also a copy of your final findings. Any changes to the protocol made subsequent to this application must be notified to the Administrator and may require consideration by the Committee. If the project has not commenced within two years then a resubmission will be necessary.  

Yours sincerely  

[Signature]

Robert King  
Vice-Chairman, Broadmoor Hospital  
Ethics Committee
14 October 2003

Dear Ms Glorney

Re: Violence: an interpersonal communication?

I am pleased to confirm that the above project has received Trust R&D approval, and you may now commence your research.

May I take the opportunity to remind you that during the course of your research you will be expected to ensure the following:

- **Patient contact:** only trained or supervised researchers who hold a Trust/NHS contract (honorary or full) are allowed contact with Trust patients. If you do not hold a contract please contact the R&D Office as soon as possible.

- **Informed consent:** original signed consent forms must be kept on file. A copy of the consent form must also be placed in the patient’s notes. Research projects are subject to random audit by a member of the R&D Office who will ask to see all original signed consent forms.

- **Data protection:** measures must be taken to ensure that patient data is kept confidential in accordance with the Data Protection Act.

- **Health & safety:** all local health & safety regulations where the research is being conducted must be adhered to.

- **Adverse events:** adverse events or suspected misconduct should be reported to the R&D Office and the Ethics Committee.

- **Project update:** you will be sent a project update form at regular intervals. Please complete the form and return it to the R&D Office.

- **Publications:** it is essential that you inform the R&D Office about any publications which result from your research.

We would like to wish you every success with your project.

Please would you send us a copy of your ethics approval letter as soon as you receive it.

Regards

Maria Tsappis
Research Governance Co-ordinator
APPENDIX 3

Demographic information sheet for the non-offending volunteer sample

Demographic characteristics of the non-offending volunteer sample
GENERAL BACKGROUND INFORMATION

Please circle the relevant response, where appropriate.

Gender  male  female

How old are you?  □  Years old

What is your nationality?  

What is your country of residence?  

What is your highest level of education?
  School (16 yrs age)
  School (18 yrs age)
  Undergraduate university degree
  Postgraduate university degree

Have you ever studied psychology at university degree level?  Yes  No

Please select the occupation that most accurately reflects you at the moment:
  Homemaker
  Managerial and Technical Occupations
  Professional Occupations
  Skilled occupations: manual
  Skilled occupations: non-manual
  Student
  Retired
  Unemployed
  Unskilled occupations

Please see over for the remaining few questions
Have you ever been convicted of a criminal offence?  

Yes  
No  

(You are not legally required to disclose this information. However, these responses are anonymous and will be treated in the strictest confidence. This information is absolutely necessary for the study)

If so, do you have any convictions for the following:

<table>
<thead>
<tr>
<th>Conviction Type</th>
<th>Yes</th>
<th>No</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic/motoring offences (other than speeding)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Offences involving the injury of another person (e.g. assault, wounding)</td>
<td>YES</td>
<td>NO</td>
<td>NOT APPLICABLE</td>
</tr>
<tr>
<td>Offences involving criminal damage or damaging property</td>
<td>YES</td>
<td>NO</td>
<td>NOT APPLICABLE</td>
</tr>
<tr>
<td>Sexual offences</td>
<td>YES</td>
<td>NO</td>
<td>NOT APPLICABLE</td>
</tr>
<tr>
<td>Acquisitive offences (e.g. theft, robbery)</td>
<td>YES</td>
<td>NO</td>
<td>NOT APPLICABLE</td>
</tr>
<tr>
<td>Arson</td>
<td>YES</td>
<td>NO</td>
<td>NOT APPLICABLE</td>
</tr>
<tr>
<td>Possession of a weapon</td>
<td>YES</td>
<td>NO</td>
<td>NOT APPLICABLE</td>
</tr>
</tbody>
</table>

Many thanks for completing this information. Please leave your address in the space below if you would like a summary of the results when they have been analysed:

Please continue on to complete the questionnaires now.
### Table A: Demographic characteristics of the non-offending volunteer sample

<table>
<thead>
<tr>
<th></th>
<th>On-line 2003 (n=70)</th>
<th>On-line 2004 (n=174)</th>
<th>Supermarket staff (n=16)</th>
<th>Freepost (n=76)</th>
<th>Total (n=336)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean age yrs (SD); range</strong></td>
<td>42.21 (13.07); 18-70</td>
<td>33.08 (9.16); 19-63</td>
<td>35 (11.32); 19-58</td>
<td>39.97 (14.9); 19-89</td>
<td>36.63 (12.24); 18-89</td>
</tr>
<tr>
<td><strong>Education:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>16 years age (e.g. GCSE)</td>
<td>2 (2.86%)</td>
<td>12 (6.9%)</td>
<td>6 (37.5%)</td>
<td>14 (18.42%)</td>
<td>34 (10.12%)</td>
</tr>
<tr>
<td>18 years age (e.g. A-level)</td>
<td>14 (20%)</td>
<td>27 (15.52%)</td>
<td>6 (37.5%)</td>
<td>26 (34.21%)</td>
<td>73 (21.73%)</td>
</tr>
<tr>
<td>Diploma</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Degree</td>
<td>38 (54.28%)</td>
<td>70 (40.23%)</td>
<td>3 (18.75%)</td>
<td>18 (23.68%)</td>
<td>129 (38.39%)</td>
</tr>
<tr>
<td>Postgraduate degree</td>
<td>16 (22.86%)</td>
<td>65 (37.35%)</td>
<td>1 (6.25%)</td>
<td>17 (22.37%)</td>
<td>99 (29.46%)</td>
</tr>
<tr>
<td>Missing data</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1 (1.32%)</td>
<td>1 (.3%)</td>
</tr>
<tr>
<td><strong>Occupation:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homemaker</td>
<td>0</td>
<td>0</td>
<td>1 (6.25%)</td>
<td>1 (1.32%)</td>
<td>2 (.6%)</td>
</tr>
<tr>
<td>Managerial and professional</td>
<td>22 (31.43%)</td>
<td>50 (28.74%)</td>
<td>4 (25%)</td>
<td>18 (23.68%)</td>
<td>94 (27.98%)</td>
</tr>
<tr>
<td>Professional</td>
<td>19 (27.14%)</td>
<td>91 (52.3%)</td>
<td>3 (18.75%)</td>
<td>27 (35.53%)</td>
<td>140 (41.67%)</td>
</tr>
<tr>
<td>Skilled manual</td>
<td>2 (2.86%)</td>
<td>9 (5.17%)</td>
<td>2 (12.5%)</td>
<td>7 (9.21%)</td>
<td>20 (5.95%)</td>
</tr>
<tr>
<td>Skilled non-manual</td>
<td>8 (11.43%)</td>
<td>7 (4.02%)</td>
<td>1 (6.25%)</td>
<td>4 (5.26%)</td>
<td>20 (5.95%)</td>
</tr>
<tr>
<td>Student</td>
<td>5 (7.14%)</td>
<td>11 (6.32%)</td>
<td>1 (6.25%)</td>
<td>5 (6.58%)</td>
<td>22 (6.65%)</td>
</tr>
<tr>
<td>Unemployed</td>
<td>11 (15.71%)</td>
<td>5 (2.87%)</td>
<td>0</td>
<td>1 (1.32%)</td>
<td>17 (5.06%)</td>
</tr>
<tr>
<td>Unskilled</td>
<td>1 (1.43%)</td>
<td>1 (0.58%)</td>
<td>4 (25%)</td>
<td>3 (3.95%)</td>
<td>9 (2.67%)</td>
</tr>
<tr>
<td>Retired</td>
<td>2 (2.86%)</td>
<td>0</td>
<td>0</td>
<td>10 (13.15%)</td>
<td>12 (3.57%)</td>
</tr>
<tr>
<td><strong>Studied psychology at degree level:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>6 (8.57%)</td>
<td>26 (14.94%)</td>
<td>2 (12.5%)</td>
<td>6 (7.9%)</td>
<td>40 (11.9%)</td>
</tr>
<tr>
<td>No</td>
<td>64 (91.43%)</td>
<td>148 (85.06%)</td>
<td>14 (87.5%)</td>
<td>70 (92.1%)</td>
<td>296 (88.1%)</td>
</tr>
</tbody>
</table>
APPENDIX 4

Letter to on-line newsgroups and list of groups invited to participate
Dear all,

I am conducting research into conflict behaviour and I am interested in how people think about themselves and behave with other people in different situations. We expect that the findings of this study will contribute to helping people who find themselves in serious conflict situations on a regular basis.

If you are able to help out, this study requires you to complete a series of short questionnaires, which will take about 10 minutes. The questionnaires, along with further information, can be found at the following:

http://www.surrey.ac.uk/psychology/emily

I hope that you will feel able to participate in this study.

Many thanks for your time.

Emily

List of on-line sites where questionnaires were advertised

Google Usenet discussion forums

http://www.google.co.uk then click on GROUPS

alt. = any conceivable topic
biz. = business products, services, reviews
comp. = hardware, software, consumer info
humanities. = fine art, literature, philosophy
misc. = employment, health and much more
news. = info about Usenet news
rec. = games, hobbies, sports
sci. = applied science, social science
soc. = social issues, culture
talk. = current issues and debates

Invitations to participate in the research were posted on the following sites:

15th November 2003
alt.misc, biz.misc, comp.misc, humanities.misc, misc.misc., news.misc, rec.misc,
scl.misc, soc.misc

24th November 2003
talk.politics.drugs, talk.atheism, talk.origins, talk.rumors, talk.philosophy.humanism,
soc.retirement, soc.men, soc.college, rec.answers, rec.aviation.simulators,
rec.music.beatles, rec.boats, rec.guns, misc.consumers, misc.education
Invitations were in the following Usenet groups on 8th December 2003, and removed on 12th December 2003:
Alt.misc, biz.misc, comp.misc, humanities.misc, misc.misc, news.misc, rec.misc, sci.misc, soc.misc, talk.politics.drugs, talk.atheism, talk.philosophy.humanism, soc.reirement, soc.men, soc.college, rec.aviation.simulators, rec.music.beatles, rec.boats, misc.consumers, misc.education, uk.community.firefighting, uk.comp.misc, uk.comp.homebuilt, uk.comp.os.win2000, uk.comp.sys.mac, uk.consultants, uk.current-events.terrorism, uk.d-i-y, uk.education.teachers, uk.environment, uk.finance, uk.food+drink.indian, uk.food+drink.miss, uk.food+drink.real-ale, uk.gov.local, uk.gov.social-security, uk.local.bedfordshire, uk.local.birmingham, uk.local.cumbria, uk.local.derbyshire

Yahoo groups

http://uk.groups.yahoo.com

Music – artists – the_cooper_temple_clause
Music – artists – team_cooper
Music – artists – vega4onlineteam
Music – DJs – pauloakenfoldclub
Music – DJs – djsgetoneverymailinglist
Music – DJs – andyalmightyfc

2nd December 2003
Music – events – howdoesitfeel
Software – music groups – 3gp
Cultures & Community – issues and causes – gps – resistbush
APPENDIX 5

Web page information sheet and instructions to participants
IF I WERE IN THAT SITUATION .........
What's the aim of this study?
We are conducting research into conflict behaviour and we are interested in how people think about themselves and behave with other people in different situations. We will not be examining your responses on an individual level; We will be using the responses provided on the internet to compare to groups of people who find themselves in serious conflict situations on a regular basis.

What will I need to do?
This study requires you to complete a series of short questionnaires, which will take between 12-20 minutes. You will also be asked to provide some background information about yourself because we are interested in comparing the differences between various groups of people. It is very important that you answer the questions as honestly as you can and that you provide an answer for each question. Please take the time to read the instructions provided throughout the questionnaire, as the way in which you are required to respond changes from one set of questions to the next.

But will you know who I am?
No. Should you agree to participate, you are not requested to supply your name, so you can be assured that your responses will remain confidential. The research team are unable to identify you from the information you provide. At the end of the questionnaire, once you have submitted your responses, you will be given the opportunity to request further information about the study. This will require you to provide your e-mail address. Otherwise, you will not be asked to provide contact details.

How do I indicate my response?
Responses are made by clicking on the radio button or 'hole' underneath each question. A black dot will appear to signal your answer. If you make a mistake then you can simply click on the alternate response to change it. Please make sure that the black dot is underneath your correct response for each question.

How do I send my completed questionnaire?
All of the questions are on one web page, so you only need to send the information once. Once you have completed all of the questions you will be at the bottom of the page, where you'll see the SUBMIT button. Simply click this once and you will send your responses to the Research Team. By clicking on the SUBMIT button after completion of the questionnaire you will be agreeing to submit your anonymous responses to the Research Team.
Can I stop at any time?
There is no time limit on the questionnaire, so feel free to take as long as you like! Should you wish to withdraw from the study at any time there is a WITHDRAW button at the end of the questions. Simply scroll down to the end of the page and click on the button. No information at all will be sent to the Research Team.

We hope that you will feel able to participate in this study. We expect that the findings of this study will contribute to helping people who find themselves in serious conflict situations on a regular basis.

Many thanks for your anticipated time in completing this questionnaire.

The Research Team
interpersonal-research@surrey.ac.uk

To continue to the Questionnaire please CLICK HERE

Many thanks for completing these questionnaires
Many thanks for taking the time to complete this series of questionnaires.

Please do not complete this questionnaire again.
Your help is greatly appreciated.
Should you require any further information about the study please leave us your email address below.

Please leave your email address here

SUBMIT responses
APPENDIX 6

Letter to local residents
23rd January 2004

RE: Invitation to take part in a research study

To whom it may concern,

A research team at the University of Surrey are carrying out a large-scale study looking at how people think about themselves and how they behave with other people in different situations. We need the help of a large number of males who are over 18 years of age, in order to compare the responses of members of the community (yourself) with those who are currently serving prison sentences for using aggressive behaviour. We expect that the findings of this study will contribute to helping people who find themselves in serious conflict situations on a regular basis.

If you are male, over 18 years of age and able to help out, this study requires you to complete a series of short questionnaires, which will take about 10 minutes. You will remain anonymous to the research team. The questionnaires, along with further information, can be found on the internet at the following address:

http://www.surrey.ac.uk/psychology/interpersonal-research

If there are no males in your household who are over the age of 18 years, then please feel free to pass this letter on to those people who you think may be able to help.

If you do not have access to the internet, but would like to take part in this study, then the research team can send further information about the study and a questionnaire pack to you in the post. Please call 01483 686899 to request the questionnaires. Alternatively, you can write to us at the above address.

Thank you very much for taking the time to read this invitation. We do hope that you, or someone you know, will be able to take part in this study.

The Interpersonal Research Team
APPENDIX 7

Letter to local businesses
A research team at the University of Surrey are carrying out a large-scale study looking at how people think about themselves and how they behave with other people in different situations. We need the help of a large number of British males who are over 18 years of age, in order to compare the responses of members of the community (your staff) with those who are currently serving prison sentences for using aggressive behaviour. We expect that the findings of this study will contribute to helping people who find themselves in serious conflict situations on a regular basis, so helping to reduce violent crime in society. This study has received ethical approval from the University of Surrey Advisory Committee on Ethics.

The Interpersonal Research Team has decided to contact you because we expect that there will be a large number of males at [store name] who may be willing to participate in this research, in their own time. The study involves completion of a series of questionnaires which typically takes between 15-20 minutes. I am writing to enquire as to the possibility of visiting the store on an agreed day to distribute questionnaires to staff members (maybe at the end of the working day/shift) and to answer any questions that you or they may have. Additional information is supplied along with the questionnaires, as well as a FREEPOST envelope in which to return the completed questionnaires.

I have kept this letter brief as I expect that you are very busy. Please do not hesitate to contact me should you require further information.

I look forward to hearing from you soon.

Yours sincerely,

Emily Glorney (on behalf of the Interpersonal Research Team)
APPENDIX 8

Information sheet for pencil and paper completion method – non-offending volunteer sample
INTERPERSONAL BEHAVIOUR: INFORMATION SHEET

A research team at the University of Surrey are carrying out a large-scale study looking at how people think about themselves and how they behave with other people in different situations. We need the help of a large number of British males who are over 18 years of age, in order to compare the responses of members of the community (yourself) with those who are currently serving prison sentences for using aggressive behaviour. We expect that the findings of this study will contribute to helping people who find themselves in serious conflict situations on a regular basis.

What will I need to do?
The study requires you to complete a series of short questionnaires (enclosed) which will take between 12-20 minutes. You will also be asked to provide some background information about yourself because we are interested in comparing the differences between various groups of people. We will not be examining your responses on an individual level; we will be using the responses from these questionnaires to compare to groups of people who find themselves in serious conflict situations on a regular basis. It is very important that you answer the questions as honestly as you can and that you provide an answer for each question. Please take time to read the instructions provided throughout the questionnaires, as the way in which you are required to respond changes from one set of questions to the next.

Will you know who I am?
No. Should you agree to participate then you will not be required to supply your name on the questionnaires, so you can be assured that the responses will remain confidential. The research team are unable to identify you from the information you provide. You will have the option of leaving your address, should you require a summary of the results of the study when analysis is complete, but otherwise responses are anonymous. All information will be processed in accordance with the Data Protection Act (1998).

What do I need to do with my questionnaires?
Please return the questionnaires to the research team in the FREEPOST envelope.

Many thanks for your anticipated cooperation.

The Interpersonal Research Team
APPENDIX 9

Letter to Prison Governor/Head of Psychology
20th February 2004

Re: Application to undertake research in HMP

Dear [Name],

I am a doctoral research student at the University of Surrey, currently conducting research into the relationship between violent behaviour and interpersonal style. Funded by the Economic and Social Research Council, this research involves an examination of 1) what violent behaviour means to those people who have used the behaviour (i.e. those with a conviction for a violent offence), and 2) how a characteristic interpersonal style may be reflected in behaviour, specifically violent behaviour. I have received ethical approval for this piece of research both from the Home Office and the University of Surrey: [Ethics Approval Number]. Area Psychologist for East Midlands (South), is aware of this communication (please see attached letter).

Presently this work is being carried out within a Special Hospital and with non-offending volunteers from the local community; I am writing to you to enquire as to the possibility of recruiting participants from HMP [Prison Name].

The inclusion criteria for participation across the three studies are males with a history of violent offences (as documented by the criminal record) and without a history of sexual offences or fire-setting. I understand that I will not have access to the relevant files to discover this information before obtaining consent from the individual prisoners. Therefore, I will need to rely on the staff in the Psychology Department to direct me towards prisoners who they think may be suitable to take part. Once consent is obtained at the time of participation exhaustive case-file data collection can take place by the two researchers. In short, sample identification may most effectively take place through word of mouth of staff in the Psychology Department.

This study involves completion of a questionnaire battery, which takes between 15 and 30 minutes to complete. The researchers do not need to be present during completion of the questionnaires (1:1 contact is not necessary), so it is possible that a large number (200 responses are required in total) of questionnaires could be distributed simultaneously for prisoners to complete in their own time. It may be most effective to identify the wings with prisoners most likely to satisfy the research inclusion criteria and distribute to all prisoners on the wing. Permission to access files is requested at the beginning of the questionnaires, so case file data collection could take place after collation of
questionnaires. Again, 15 minutes should be sufficient to gain all the relevant information from each file.

To summarise, this study involves the administration of a large number of questionnaire batteries to entire wings (if this is considered to be the most resource-effective method of carrying out this study), for prisoners to complete in their own time. Case-file data collection for 200 prisoners across two researchers has been estimated at 4 days.

[REDACTED] has forwarded my application to undertake research entitled Exploring violence from the perspective of the perpetrator: An interpersonal communication? to the Prisons Research Contacts, so I have not appended it here. However, please do not hesitate to contact me directly by any of the above means, should you require further information or clarification.

I look forward to hearing from you soon and do hope that HMP [REDACTED] will be able to participate in this research.

Yours sincerely,

Emily Glorney

cc. Head of Psychology
APPENDIX 10

Poster displayed on HM Prison Wings prior to questionnaire distribution
My name is Emily and I am carrying out a large-scale study looking at how people think about themselves and how they behave with other people in different situations. To carry out this study I need the help of current prisoners within the Prison Service. All prisoners on [Wing will be invited to take part anonymously. The study will require you to complete four short questionnaires and one longer questionnaire, which will take about 15-20 minutes to complete in your own time.

The reason that I am carrying out this study is to find out what may be important things to consider when designing treatment programmes within the Prison Service. This means that programmes might be able to be improved through your participation in this study. Whilst you may not be involved in such programmes yourself, many people who have completed these questionnaires have said that they enjoyed completing the questionnaires because it gave them a chance to think about themselves and how much they have changed since they have been in prison.

Should you agree to participate in this study only I will have access to the questionnaires. All of the information will be fed into a computer and analysed as a group. Your responses on the questionnaires will be confidential. In fact, we don’t even need to know your name!

I will be on the Wing on Friday 7th May between 9:30 and 10:30 a.m. to answer any questions that you may have about the research. The questionnaires will be distributed to each cell at lunch time on that day. I will also be available to answer questions on the same day between 1:30 and 2:00 p.m. If you would like to speak to me about the research then please make an application to see me within these times through your wing officers.

Thank you very much for taking the time to read this. I do hope that you will be able to help out.

Emily
APPENDIX 11

Information sheet for HM Prison sample
RE: Invitation to participate in a research study

I am a researcher from the University of Surrey carrying out a large-scale study looking at how people think about themselves and how they behave with other people in different situations. To carry out this study I need the help of current prisoners within the Prison Service. All prisoners on the wing have been invited to take part anonymously. The study will require you to complete four short questionnaires and one longer questionnaire. The questionnaires are attached to this letter and will take about 15-20 minutes to complete in your own time. **If you are able, please complete and return the questionnaires confidentially (in the brown envelope) to the wing office by Monday 14th June, when we will collect them.**

The reason that I am carrying out this study is to find out what may be important things to consider when designing treatment programmes within the Prison Service. This means that programmes might be able to be improved through your participation in this study. Whilst you may not be involved in such programmes yourself, many people who have completed these questionnaires have said that they enjoyed completing the questionnaires because it gave them a chance to think about themselves and to consider personal change that may have taken place since being in prison.

Should you agree to participate in this study only I will have access to your responses, which will be confidential and anonymous, as you do not need to provide your name. You will see that there is also a sheet called ‘General Background Information’ attached to the questionnaires. This information is necessary so that I can make the findings of the research more specific to the different needs of prisoners and the offences that have been committed, which will therefore have an impact on the development and improvement of treatment programmes.

Thank you very much for taking the time to read this invitation. I do hope that you will feel able to complete these questionnaires and that you will gain some benefit in doing so.

Emily
APPENDIX 12

Demographic information sheet for the HM Prison sample

Demographic characteristics of the HM Prison sample
GENERAL BACKGROUND INFORMATION

Please circle the relevant response, where appropriate.

How old are you?    _____ Years old

What is your nationality? ____________________________

Which (if any) of the following describes your ethnic background:

White British    Black British    Asian British    Mixed    Chinese
White Irish    Black Afro-Caribbean    Asian
White    Black    Other (please specify) ________________

What is your highest educational qualification?

None    GCSE/O-level/CSE    A-level    Diploma (HND etc.)
University degree    Postgraduate degree/diploma

How many years/months have you been in prison for so far during this sentence?

______ Years    _______ months

Please indicate below if you have EVER been convicted of any of the following offences:

(You are not legally required to disclose this information. However, these responses are anonymous and will be treated in the strictest confidence. This information is absolutely necessary for the study)

<table>
<thead>
<tr>
<th>Offence</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic/molting offences (e.g. taking and driving away, driving without licence/insurance, drink-driving, dangerous driving)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acquisitive offences (e.g. theft, robbery, burglary)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Offences involving criminal damage or damaging property</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arson (inc. setting fires)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fraud (inc. using false documents, imitating another person)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Possession of drugs (inc. dealing)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Possession of a weapon (inc. gun, knife, etc.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexual offences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Offences against the person: e.g. ABH, affray, assault</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Offences against the person: e.g. GBH, wounding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Offences against the person: e.g. Murder, manslaughter</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table B: Demographic and forensic characteristics of the HM Prison sample

<table>
<thead>
<tr>
<th></th>
<th>Coldingley (n=16)</th>
<th>Channings Wood (n=28)</th>
<th>Gartree (n=22)</th>
<th>Grendon (n=11)</th>
<th>Swaleside (n=24)</th>
<th>Wandsworth (n=25)</th>
<th>Total (n=126)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean age yrs (SD); range</strong></td>
<td>33.75 (8.85); 23-53</td>
<td>32.93 (9.54); 21-63</td>
<td>33.18 (9.91); 21-63</td>
<td>36.09 (7.45); 26-51</td>
<td>38.83 (10.76); 24-59</td>
<td>33.44 (9.72); 21-55</td>
<td>34.64 (9.68); 21-63</td>
</tr>
<tr>
<td><strong>Ethnicity: White British</strong></td>
<td>14 (87.5%)</td>
<td>24 (85.72%)</td>
<td>20 (90.9%)</td>
<td>9 (81.82%)</td>
<td>20 (83.33%)</td>
<td>20 (80%)</td>
<td>106 (84.8%)</td>
</tr>
<tr>
<td><strong>Black British</strong></td>
<td>2 (12.5%)</td>
<td>1 (3.57%)</td>
<td>1 (4.55%)</td>
<td>2 (18.18%)</td>
<td>2 (8.33%)</td>
<td>5 (20%)</td>
<td>13 (10.4%)</td>
</tr>
<tr>
<td><strong>Asian British</strong></td>
<td>0</td>
<td>1 (3.57%)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1 (0.8%)</td>
</tr>
<tr>
<td><strong>Other British</strong></td>
<td>0</td>
<td>1 (3.57%)</td>
<td>1 (4.55%)</td>
<td>0</td>
<td>1 (4.17%)</td>
<td>0</td>
<td>3 (2.4%)</td>
</tr>
<tr>
<td><strong>Missing information</strong></td>
<td>0</td>
<td>1 (3.57%)</td>
<td>0</td>
<td>0</td>
<td>1 (4.17%)</td>
<td>0</td>
<td>2 (1.6%)</td>
</tr>
<tr>
<td><strong>Highest attained level of education:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>8 (28.57%)</td>
<td>6 (27.27%)</td>
<td>4 (36.36%)</td>
<td>5 (20.83%)</td>
<td>9 (36%)</td>
<td>32 (25.6%)</td>
<td></td>
</tr>
<tr>
<td>16 years age (e.g. GCSE)</td>
<td>7 (25%)</td>
<td>9 (40.91%)</td>
<td>5 (45.45%)</td>
<td>7 (29.17%)</td>
<td>8 (32%)</td>
<td>13 (10.4%)</td>
<td></td>
</tr>
<tr>
<td>18 years age (e.g. A-level)</td>
<td>5 (17.86%)</td>
<td>1 (4.55%)</td>
<td>1 (9.09%)</td>
<td>5 (20.83%)</td>
<td>1 (4%)</td>
<td>11 (8.8%)</td>
<td></td>
</tr>
<tr>
<td>Diploma</td>
<td>3 (10.71%)</td>
<td>2 (9.09%)</td>
<td>1 (9.09%)</td>
<td>1 (4.17%)</td>
<td>4 (16%)</td>
<td>2 (8%)</td>
<td></td>
</tr>
<tr>
<td>Degree</td>
<td>0</td>
<td>1 (4.55%)</td>
<td>0</td>
<td>4 (16.67%)</td>
<td>2 (8%)</td>
<td>7 (5.6%)</td>
<td></td>
</tr>
<tr>
<td>Postgraduate degree</td>
<td>2 (7.14%)</td>
<td>1 (4.55%)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3 (2.4%)</td>
<td></td>
</tr>
<tr>
<td>Missing information</td>
<td>3 (10.71%)</td>
<td>2 (9.09%)</td>
<td>0</td>
<td>2 (8.33%)</td>
<td>1 (4%)</td>
<td>24 (19.2%)</td>
<td></td>
</tr>
<tr>
<td><strong>Mean length of current sentence served, years (SD); range</strong></td>
<td>Information unavailable</td>
<td>1.98 (2.76); 0.25-14.58</td>
<td>4.07 (2.69); 0.58-10.5</td>
<td>7.59 (5.95); 1.25-20</td>
<td>4.39 (3.37); 0.5-13.58</td>
<td>0.75 (0.99); 0.08-4.67</td>
<td>3.22 (3.67); 0.08-20</td>
</tr>
<tr>
<td><strong>Criminal convictions:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traffic offences</td>
<td>10 (62.5%)</td>
<td>18 (64.29%)</td>
<td>12 (54.55%)</td>
<td>9 (81.82%)</td>
<td>12 (50%)</td>
<td>11 (44%)</td>
<td>72 (57.14%)</td>
</tr>
<tr>
<td>Acquisitive offences</td>
<td>14 (87.5%)</td>
<td>18 (64.29%)</td>
<td>11 (50%)</td>
<td>11 (100%)</td>
<td>14 (58.33%)</td>
<td>16 (64%)</td>
<td>94 (66.67%)</td>
</tr>
<tr>
<td>Criminal damage</td>
<td>7 (43.75%)</td>
<td>13 (46.43%)</td>
<td>9 (40.91%)</td>
<td>10 (90.91%)</td>
<td>6 (25%)</td>
<td>12 (48%)</td>
<td>57 (45.24%)</td>
</tr>
<tr>
<td>Fraud</td>
<td>6 (37.5%)</td>
<td>9 (32.14%)</td>
<td>4 (18.18%)</td>
<td>4 (36.36%)</td>
<td>4 (16.67%)</td>
<td>7 (28%)</td>
<td>34 (26.98%)</td>
</tr>
<tr>
<td>Possession of drugs</td>
<td>7 (43.75%)</td>
<td>13 (46.43%)</td>
<td>4 (18.18%)</td>
<td>3 (27.27%)</td>
<td>6 (25%)</td>
<td>12 (48%)</td>
<td>45 (35.71%)</td>
</tr>
<tr>
<td>Possession of a weapon</td>
<td>4 (25%)</td>
<td>13 (46.43%)</td>
<td>7 (31.82%)</td>
<td>9 (81.82%)</td>
<td>10 (41.67%)</td>
<td>7 (28%)</td>
<td>30 (24.88%)</td>
</tr>
<tr>
<td>ABH-level</td>
<td>8 (50%)</td>
<td>16 (57.14%)</td>
<td>9 (40.91%)</td>
<td>8 (72.73%)</td>
<td>11 (45.83%)</td>
<td>9 (36%)</td>
<td>61 (48.41%)</td>
</tr>
<tr>
<td>GBH-level</td>
<td>2 (12.5%)</td>
<td>11 (39.29%)</td>
<td>7 (31.82%)</td>
<td>3 (27.27%)</td>
<td>5 (20.83%)</td>
<td>4 (16%)</td>
<td>32 (25.4%)</td>
</tr>
<tr>
<td>Murder/manslaughter</td>
<td>4 (25%)</td>
<td>3 (10.71%)</td>
<td>17 (77.27%)</td>
<td>6 (54.55%)</td>
<td>14 (58.33%)</td>
<td>1 (4%)</td>
<td>45 (35.71%)</td>
</tr>
</tbody>
</table>
APPENDIX 13

Letter to the Responsible Medical Officer
Broadmoor sample
19th April 2004

Dear Dr. [Name],

I am writing to seek your opinion regarding suitability of the following patient on [ward] participating in a research study entitled **Violence: An Interpersonal Communication**. This study has been approved by the Ethics Committee of Broadmoor hospital and has been registered with the Trust database.

This study aims to explore whether there are different levels of reported aggression across groups of offenders with differing levels of violent behaviour (selected on the basis of offending history), and whether there are different interpersonal styles across the groups. In addition, the study will examine whether general self-efficacy and psychological estrangement predict interpersonal style. Furthermore, the study aims to investigate the relationship between interpersonal style and aggression throughout the whole sample.

Participants will be asked to complete a series of questionnaires in the presence of the researcher. Questions will be read to patients with poor literacy skills. It is anticipated that this will take no longer than 30 minutes. Non-offending volunteer participants in the local community typically complete the questionnaires in 15 minutes.

On the basis of offence history and behaviour since admission to the hospital, the following patients on [ward] have been identified as being suitable to approach for participation in the study, with your approval:

- [Name]
- [Name]

I have enclosed a RMO consent form for you to sign, should you agree to my approaching the patient to take part. Please also find a patient information sheet, for your information.

Please do not hesitate to contact me should you require further information.

Yours sincerely,

Emily Glorney

cc. [Name], Link Psychologist [ward]
APPENDIX 14

Information sheet for Broadmoor sample
The effect of communication style on behaviour among patients at Broadmoor Hospital

INFORMATION SHEET

Participation in this study is completely voluntary. If you do not wish to participate, or if you do and then change your mind, this will not affect your treatment or care in any way.

My name is Emily Glorney and I am conducting research as part of a University course. I also work in the psychology department at Broadmoor hospital. I am currently hoping to conduct some research looking at how people think about themselves and behave with other people in different situations. To carry out this study I need the help of patients currently living in Broadmoor hospital. The study will require you to be interviewed by a researcher who will ask you to complete four short questionnaires and one longer questionnaire. The questionnaires are about how you cope with different situations and how you feel in different situations. The interview will take no longer than 30 minutes.

Should you agree to participate, only the people directly involved with the study will have access to the questionnaires. The details of the interview will be confidential. The only exception to this would be if you disclose information regarding the potential or actual harm of yourself or others. I am obliged to report this to an appropriate person.

If you have any concerns or questions about the study please contact:

Emily Glorney
Psychology Department
Broadmoor Hospital
APPENDIX 15

Consent form for Broadmoor sample
The effect of communication style on behaviour among patients at Broadmoor Hospital

RESEARCH CONSENT FORM

Participation in this study is completely voluntary. If you do not wish to participate, or if you do and then change your mind, this will not affect your treatment or care in any way.

Participant's name: ______________________________________

☐ I have been given a full explanation of the nature and purpose of the study. I am aware that I will be asked to complete 5 questionnaires about how I cope in different situations and how I feel in different situations.

☐ I am aware of what is expected of me by agreeing to take part in this study.

☐ I am aware that I can refuse to participate in this study and that by not agreeing to take part my care or treatment will not be affected in any way.

☐ I agree to take part in the study.

Signature of participant:

Signed ________________________________________________
Date ___________________________________________________

Signature of researcher:

Signed ________________________________________________
Date ___________________________________________________
APPENDIX 16

Demographic and forensic characteristics of the Broadmoor sample
Table C. Demographic and forensic characteristics of the Broadmoor sample

<table>
<thead>
<tr>
<th></th>
<th>Broadmoor sample (n=56)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean age years (SD); range</strong></td>
<td>37.59 (9.49); 20-63</td>
</tr>
<tr>
<td><strong>Nationality</strong>:</td>
<td></td>
</tr>
<tr>
<td>British</td>
<td>52 (92.86%)</td>
</tr>
<tr>
<td>Jamaican</td>
<td>2 (3.57%)</td>
</tr>
<tr>
<td>American</td>
<td>1 (1.78%)</td>
</tr>
<tr>
<td>South African</td>
<td>1 (1.78%)</td>
</tr>
<tr>
<td><strong>Ethnicity</strong>:</td>
<td></td>
</tr>
<tr>
<td>White British</td>
<td>37 (66.07%)</td>
</tr>
<tr>
<td>Black British</td>
<td>8 (14.29%)</td>
</tr>
<tr>
<td>Black Afro-Caribbean</td>
<td>7 (12.5%)</td>
</tr>
<tr>
<td>White</td>
<td>2 (3.57%)</td>
</tr>
<tr>
<td>Asian</td>
<td>1 (1.78%)</td>
</tr>
<tr>
<td>Mixed</td>
<td>1 (1.78%)</td>
</tr>
<tr>
<td><strong>Highest attained level of educational qualification</strong>:</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>34 (60.71%)</td>
</tr>
<tr>
<td>16 years age (e.g. GCSE)</td>
<td>20 (35.71%)</td>
</tr>
<tr>
<td>Degree</td>
<td>1 (1.78%)</td>
</tr>
<tr>
<td><strong>Mean length of current sentence served, years (SD); range</strong></td>
<td>9.51 (6.52); .42-25.83</td>
</tr>
<tr>
<td><strong>Mean length of current stay in Broadmoor, years (SD); range</strong></td>
<td>5.9 (4.59); .33-19.75</td>
</tr>
<tr>
<td><strong>MHA (1983) classification</strong>:</td>
<td></td>
</tr>
<tr>
<td>Mental Illness</td>
<td>39 (69.64%)</td>
</tr>
<tr>
<td>Psychopathic Disorder</td>
<td>8 (14.29%)</td>
</tr>
<tr>
<td>Mental Illness/Psychopathic Disorder</td>
<td>9 (16.07%)</td>
</tr>
<tr>
<td><strong>Criminal convictions</strong>:</td>
<td></td>
</tr>
<tr>
<td>Traffic offences</td>
<td>20 (35.71%)</td>
</tr>
<tr>
<td>Acquisitive offences</td>
<td>48 (85.71%)</td>
</tr>
<tr>
<td>Criminal damage</td>
<td>30 (53.57%)</td>
</tr>
<tr>
<td>Fraud</td>
<td>9 (16.07%)</td>
</tr>
<tr>
<td>Possession of drugs</td>
<td>15 (26.79%)</td>
</tr>
<tr>
<td>Possession of a weapon</td>
<td>31 (55.36%)</td>
</tr>
<tr>
<td>ABH-level</td>
<td>40 (71.43%)</td>
</tr>
<tr>
<td>GBH-level</td>
<td>29 (51.79%)</td>
</tr>
<tr>
<td>Murder/manslaughter</td>
<td>31 (55.36%)</td>
</tr>
</tbody>
</table>

*all non-British participants grew up and received schooling in the UK
APPENDIX 17

Demographic and forensic checklist for case file data collection among the Broadmoor sample
<table>
<thead>
<tr>
<th>Hospital number/name</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>Nationality</td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
</tr>
<tr>
<td>MHA 1983 classification</td>
<td></td>
</tr>
<tr>
<td>Length of stay in hospital</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Offending History</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX 18

The Inventory of Interpersonal Problems-Circumplex Scales
(Horowitz, Alden, Wiggins and Pincus, 2000)
Here is a list of problems that people report in relating to other people. Please read the list below and, for each item, consider whether that problem has been a problem for you with respect to any significant person in your life. Then select the number that describes how distressing that problem has been and circle that number. Please ask the researcher if you have any questions.

(0) not at all, (1) a little bit, (2) moderately, (3) quite a bit, (4) extremely

<table>
<thead>
<tr>
<th>Problem</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part I – It is hard for me to...</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. It is hard for me to trust other people.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. It is hard for me to say &quot;no&quot; to other people.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. It is hard for me to join in on groups.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. It is hard for me to keep things private from other people.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. It is hard for me to let other people know what I want.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. It is hard for me to tell a person to stop bothering me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. It is hard for me to introduce myself to new people.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. It is hard for me to confront people with problems that come up.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. It is hard for me to be assertive with another person.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. It is hard for me to let other people know when I’m angry.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. It is hard for me to make a long-term commitment to another person.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. It is hard for me to be another person’s boss.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
13. It is hard for me to be aggressive toward someone when the situation calls for it. 0 1 2 3 4
14. It is hard for me to socialise with other people. 0 1 2 3 4
15. It is hard for me to show affection to other people. 0 1 2 3 4
16. It is hard for me to get along with other people. 0 1 2 3 4
17. It is hard for me to understand another person's point of view. 0 1 2 3 4
18. It is hard for me to express my feelings to other people directly. 0 1 2 3 4
19. It is hard for me to be firm when I need to be. 0 1 2 3 4
20. It is hard for me to experience a feeling of love for another person. 0 1 2 3 4
21. It is hard for me to set limits on other people. 0 1 2 3 4
22. It is hard for me to be supportive of another person's goals in life. 0 1 2 3 4
23. It is hard for me to feel close to other people. 0 1 2 3 4
24. It is hard for me to really care about another person's problems. 0 1 2 3 4
25. It is hard for me to argue with another person. 0 1 2 3 4
26. It is hard for me to spend time alone. 0 1 2 3 4
27. It is hard for me to give a gift to another person. 0 1 2 3 4
28. It is hard for me to let myself feel angry at somebody I like. 0 1 2 3 4
29. It is hard for me to put somebody else's needs before my own. 0 1 2 3 4

(0) not at all, (1) a little bit, (2) moderately, (3) quite a bit, (4) extremely
(0) not at all, (1) a little bit, (2) moderately, (3) quite a bit, (4) extremely

30. It is hard for me to stay out of other people’s business.
   0 1 2 3 4

31. It is hard for me to take instructions from people who have authority over me.
   0 1 2 3 4

32. It is hard for me to feel good about another person’s happiness.
   0 1 2 3 4

33. It is hard for me to ask other people to get together socially with me.
   0 1 2 3 4

34. It is hard for me to feel angry at other people.
   0 1 2 3 4

35. It is hard for me to open up and tell my feelings to another person.
   0 1 2 3 4

36. It is hard for me to forgive another person after I’ve been angry.
   0 1 2 3 4

37. It is hard for me to attend to my own welfare when somebody else is needy.
   0 1 2 3 4

38. It is hard for me to be assertive without worrying about hurting other’s feelings.
   0 1 2 3 4

39. It is hard for me to be self-confident when I am with other people.
   0 1 2 3 4

Part II. The following are things that I do too much.

40. I fight with other people too much.
   0 1 2 3 4

41. I feel too responsible for solving other people’s problems.
   0 1 2 3 4

42. I am too easily persuaded by other people.
   0 1 2 3 4
(0) not at all, (1) a little bit, (2) moderately, (3) quite a bit, (4) extremely

43. I open up to people too much. 0 1 2 3 4
44. I am too independent. 0 1 2 3 4
45. I am too aggressive toward other people. 0 1 2 3 4
46. I try to please other people too much. 0 1 2 3 4
47. I clown around too much. 0 1 2 3 4
48. I want to be noticed too much. 0 1 2 3 4
49. I trust other people too much. 0 1 2 3 4
50. I try to control other people too much. 0 1 2 3 4
51. I put other people's needs before my own too much. 0 1 2 3 4
52. I try to change other people too much. 0 1 2 3 4
53. I am too gullible. 0 1 2 3 4
54. I am overly generous to other people. 0 1 2 3 4
55. I am too afraid of other people. 0 1 2 3 4
56. I am too suspicious of other people. 0 1 2 3 4
57. I manipulate other people too much to get what I want. 0 1 2 3 4
58. I tell personal things to other people too much. 0 1 2 3 4
59. I argue with other people too much. 0 1 2 3 4
60. I keep other people at a distance too much. 0 1 2 3 4
61. I let other people take advantage of me too much. 0 1 2 3 4
62. I feel embarrassed in front of other people too much. 0 1 2 3 4
(0) not at all, (1) a little bit, (2) moderately, (3) quite a bit, (4) extremely

63. I am affected by another person's misery too much.

64. I want to get revenge against people too much.
APPENDIX 19

The Aggression Questionnaire
(Buss and Warren, 2000)
The following statements ask you to describe how you interact with other people. There are no right or wrong answers, so please just describe yourself as honestly as you can. **PLEASE READ EACH STATEMENT CAREFULLY** and decide how well it describes you, using the following response scale. Then circle the number of the one response that best fits your answer. Please circle one of the responses 1, 2, 3, 4 or 5 according to the rating scale below. Please ask the researcher if you have any questions.

(1) not at all like me  
(2) a little like me  
(3) somewhat like me  
(4) very much like me  
(5) completely like me

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. My friends say that I argue a lot.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. Other people always seem to get the breaks.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. I flare up quickly, but get over it quickly.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. I often find myself disagreeing with people.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. At times I feel I have gotten a raw deal out of life.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. I can't help getting into arguments when people disagree with me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. At times I get very angry for no good reason.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. I may hit someone if he or sheprovokes me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. I wonder why sometimes I feel so bitter about things.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. I have threatened people I know.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11. Someone has pushed me so far that I hit him or her.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>12. I have trouble controlling my temper.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13. If I'm angry enough, I may mess up someone's work.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>14. I have been angry enough to slam a door when leaving someone behind in the room.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>15. When people are bossy I take my time doing what they want, just to show them.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
(1) not at all like me
(2) a little like me
(3) somewhat like me
(4) very much like me
(5) completely like me

16. I wonder what people want when they are nice to me. 1 2 3 4 5
17. I have become so mad that I have broken things. 1 2 3 4 5
18. I sometimes spread gossip about people I don’t like. 1 2 3 4 5
19. I am a calm person. 1 2 3 4 5
20. When people annoy me, I may tell them what I think of them. 1 2 3 4 5
21. I sometimes feel that people are laughing at me behind my back. 1 2 3 4 5
22. I let my anger show when I do not get what I want. 1 2 3 4 5
23. At times I can’t control the urge to hit someone. 1 2 3 4 5
24. I get into fights more than most people. 1 2 3 4 5
25. If somebody hits me, I hit back. 1 2 3 4 5
26. I tell my friends openly when I disagree with them. 1 2 3 4 5
27. If I have to resort to violence to protect my rights, I will. 1 2 3 4 5
28. I do not trust strangers who are too friendly. 1 2 3 4 5
29. At times I feel like a bomb ready to explode. 1 2 3 4 5
30. When someone really irritates me, I might give him or her the silent treatment. 1 2 3 4 5
31. I know that ‘friends’ talk about me behind my back. 1 2 3 4 5
32. Some of my friends think I am a hothead. 1 2 3 4 5
33. At times I am so jealous I can’t think of anything else. 1 2 3 4 5
34. I like to play practical jokes. 1 2 3 4 5
APPENDIX 20

The General Perceived Self-Efficacy questionnaire
(Schwarzer and Jerusalem, 1995)
Please read the following statements and select the response that most characterises yourself. Please read each item carefully before responding. Answer as honestly and accurately as you can. Please circle one of the responses 1, 2, 3 or 4, according to the rating scale below. Please ask the researcher if you have any questions.

(1) not at all true, (2) barely true, (3) moderately true, (4) exactly true

<table>
<thead>
<tr>
<th>Statement</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I can always manage to solve difficult problems if I try hard enough.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>2. If someone opposes me, I can find the ways and means to get what I want.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>3. I am certain that I can accomplish my goals.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>4. I am confident that I could deal efficiently with unexpected events.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>5. Thanks to my resourcefulness, I can handle unforeseen situations.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>6. I can solve most problems if I invest the necessary effort.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>7. I can remain calm when facing difficulties because I can rely on my coping abilities.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>8. When I am confronted with a problem, I can find several solutions.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>9. If I am in trouble, I can think of a good solution.</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>10. I can handle whatever comes my way.</td>
<td>1 2 3 4</td>
</tr>
</tbody>
</table>
APPENDIX 21

The Psychological Estrangement questionnaire
(Hammond, 1988)
Please read the following statements and for each one select the response which most characterises yourself. PLEASE READ EACH ITEM CAREFULLY BEFORE RESPONDING. Answer as honestly and accurately as you can. Please circle one of the responses 1, 2, 3, 4 or 5 according to the rating scale below. Please ask the researcher if you have any questions.

(1) strongly agree, (2) agree, (3) uncertain, (4) disagree, (5) strongly disagree

<table>
<thead>
<tr>
<th>Statement</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I find it easy to work out how to live my life.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>2. I feel unsure of most things in life.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>3. I often feel cut-off from myself.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>4. I find that others usually like the same things that I do.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>5. I often feel that there is no meaning in life.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>6. I find it easy to adapt to new rules and regulations.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>7. I am a sociable person.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>8. I usually know on whom I can count in a crisis.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>9. I often feel awkward and out of place.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>10. I am firmly convinced of the political beliefs I hold.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>11. I sometimes find myself doing things without any idea as to why I am doing them.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>12. I find it difficult to understand what is going on in the world.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>13. I feel that there are no definite rules to live by in life.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>14. I believe that most people really do care what happens to others.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>15. I enjoy collective activities with other people.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>16. I find it hard to know where I stand from one day to the next.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>17. Rules and regulations are destroying my creative potential.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>18. I believe that there are no right or wrong ways for successful living, just easy and hard ways.</td>
<td>1 2 3 4 5</td>
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<tr>
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</tr>
<tr>
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</tr>
<tr>
<td>19. I am satisfied with my life at present.</td>
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</tr>
<tr>
<td>20. I sometimes cannot help but wonder if anything is worthwhile.</td>
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</tr>
<tr>
<td>21. I am most comfortable when I have well defined rules to follow.</td>
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</tr>
<tr>
<td>22. I find that social values are changing too fast for my liking.</td>
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<tr>
<td>23. I have a lot of respect for the law.</td>
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</tr>
<tr>
<td>24. I don't seem to be in tune with the way of life around me.</td>
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</tr>
<tr>
<td>25. Nobody seems to be interested in how I feel about things.</td>
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</tr>
<tr>
<td>26. My greatest satisfaction seems to come from working cooperatively with others.</td>
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</tr>
<tr>
<td>27. It is important for me to be involved with a particular group or 'movement'.</td>
<td>1</td>
</tr>
<tr>
<td>28. I find it pretty easy to sympathise with the feelings of others.</td>
<td>1</td>
</tr>
<tr>
<td>29. I feel that people tend to respect my opinion in most things.</td>
<td>1</td>
</tr>
<tr>
<td>30. I believe that the welfare of the community should come before that of the individual.</td>
<td>1</td>
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</table>
APPENDIX 22

The Interpersonal Reactivity Index
(Davis, 1980)
The following statements ask about your thoughts and feelings in a variety of situations. For each item please select the response that most characterises yourself. PLEASE READ EACH ITEM CAREFULLY BEFORE RESPONDING. Answer as honestly and accurately as you can. Please circle one of the responses 0, 1, 2, 3 or 4, according to the rating scale below. Please ask the researcher if you have any questions.

(0) nothing like me, (1) a little like me, (2) quite like me, (3) like me, (4) a lot like me

1. I daydream quite often about things that might happen to me.

2. I often feel sorry for people less fortunate than me.

3. I sometimes find it difficult to see things from another person's point of view.

4. Sometimes I do not feel very sorry for other people when they are having problems.

5. I can really relate to the feelings of characters in a good book.

6. In emergency situations I feel nervous.

7. I do not usually get emotional (e.g. frightened or weepy) when I watch a film or TV drama.

8. I try to look at everybody's side of an argument before I make a decision.

9. When I see someone being bullied or ripped off I feel a bit protective towards them.

10. I sometimes feel helpless when I am in the middle of a very emotional situation.

11. I sometimes try to understand my friends better by imagining how things look from their point of view.

12. Becoming extremely involved in a good book or film is unusual for me.

13. When I see someone get hurt I stay calm.

14. Other people's bad luck does not usually upset me very much.

15. If I am sure I am right about something I do not waste time listening to other people's arguments.
16. After seeing a character on TV or in a film I have felt as though I was like that person.

17. Being in a tense emotional situation scares me.

18. When I see someone being treated unfairly I sometimes do not feel very much pity for them.

19. I am usually pretty good at dealing with emergencies.

20. I am often quite touched by things I see happen.

21. I believe that there are two sides to every question and try to look at them both.

22. I would describe myself as a pretty soft-hearted person.

23. When I watch a good film I can very easily put myself in the place of the leading character.

24. I tend to lose control during emergencies.

25. When I am upset at someone I usually try to ‘put myself in his shoes’ for a while.

26. When I am reading an interesting story I imagine how I would feel if the events in the story were happening to me.

27. When I see someone who badly needs help in an emergency I go to pieces.

28. Before criticising somebody I try to imagine how I would feel if I were in their place.
APPENDIX 23

Non-offending volunteer sample t-scores for the Inventory of Interpersonal Problems-Circumplex Scales (Horowitz, Alden, Wiggins and Pincus, 2000)
Transformed scores (t-scores; mean=50, SD=10) for the Inventory of Interpersonal Problems-Circumplex Scales (Horowitz et al., 2000), based on a sample of 334 British male non-offending volunteers.

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<th>DE</th>
<th>FG</th>
<th>HI</th>
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<td>70.90</td>
<td>69.07</td>
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</tr>
</tbody>
</table>

PA: Domineering/Controlling  
BC: Vindictive/Self-centred  
DE: Cold/Distant  
FG: Socially Inhibited  
HI: Nonassertive  
JK: Overly Accommodating  
LM: Self-sacrificing  
NO: Intrusive/Needy
APPENDIX 24

Non-offending volunteer sample t-scores for the ‘Empathic Concern’ and ‘Perspective taking’ scales of the Interpersonal Reactivity Index (Davis, 1980)
Transformed scores (t-scores; mean=50, SD=10) for the ‘Empathic concern’ and ‘Perspective taking’ scales of the Interpersonal Reactivity Index (Davis, 1980), based on a sample of 336 British male non-offending volunteers.

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<td>&gt;71.65</td>
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</table>
APPENDIX 25

Non-offending volunteer sample t-scores for Aggression Questionnaire scales
(Buss and Warren, 2000)
Transformed scores (t-scores; mean=50, SD=10) for the Aggression Questionnaire (Buss and Warren, 2000), based on a sample of 329 British male non-offending volunteers.

| Raw scores | t-scores |
|------------|--|---|---|---|
|            | Physical aggression | Verbal aggression | Anger | Hostility |
| 0          | 30.73 | 33.53 | 36.34 |
| 1          | 39.01 | 39.14 | 40.75 | 38.60 |
| 2          | 41.46 | 41.95 | 42.91 | 38.43 |
| 3          | 43.91 | 44.76 | 45.07 | 40.36 |
| 4          | 46.35 | 47.56 | 47.22 | 42.11 |
| 5          | 48.82 | 50.37 | 49.38 | 44.95 |
| 6          | 51.27 | 53.17 | 51.53 | 46.16 |
| 7          | 53.72 | 55.98 | 53.69 | 48.09 |
| 8          | 56.17 | 58.78 | 55.85 | 50.02 |
| 9          | 58.62 | 61.59 | 58.00 | 51.96 |
| 10         | 61.07 | 64.39 | 60.16 | 53.89 |
| 11         | 63.52 | 67.20 | 62.31 | 55.82 |
| 12         | 65.98 | 70.00 | 64.47 | 57.75 |
| 13         | 68.43 | 72.81 | 66.63 | 59.68 |
| 14         | 70.88 | 75.62 | 68.78 | 61.61 |
| 15         | 73.33 | 78.23 | 73.09 | 65.48 |
| 16         | 75.78 | 81.23 | 75.25 | 67.41 |
| 17         | 78.23 | 86.84 | 77.41 | 69.34 |
| 18         | 80.68 | >86.64 | 79.56 | 71.27 |
| 19         | 83.13 | >85.59 | 73.20 | 73.14 |
| 20         | 85.59 | >85.59 | 75.14 | 77.07 |
| 21         | >84.79 | >90.34 | 82.86 | 84.79 |
| 22         | >90.34 | 90.34 | 82.86 | 84.79 |
| 23         | >90.34 | >90.34 | 82.86 | 84.79 |