Does "Hot Cognition" Mediate the Relationship between Dysfunctional Attitudes (Cold Cognition) and Depression?

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Chapter One: Major Research Project Empirical Paper

Does "Hot Cognition" Mediate the Relationship between Dysfunctional Attitudes (Cold Cognition) and Depression?

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Abstract

**Objective:** Whilst the finding of a relationship between negative cognition and depression appears to be fairly robust, the types of cognition which are most relevant to depression are a source of debate. Much of the research generated has explored cognitions based on the Beckian (1967, 1983) cognitive model of depression, such as dysfunctional attitudes, which represent ‘cold’ cognition. Despite the relationship between dysfunctional attitudes and depression being well supported by the research, there is an argument that ‘hot’ cognitions are more closely related. Appraisals, which represent hot cognitions, are differentiated from cold, on the basis of the affect (heat) that they generate. This study aims to add to the empirical data exploring the relationship between different types of cognition and depression by testing whether hot cognition mediates the relationship between dysfunctional attitudes (cold cognition) and depression.

**Method:** This study utilised a cross-sectional design. Data was collected from 171 participants aged between 18 and 71 recruited via generic social networking sites and online depression forums using an online questionnaire. The degrees to which participants endorsed a dysfunctional attitude were measured, as were negative affective experiences and negative appraisals associated with the dysfunctional attitude. Self-report symptoms of depression were also measured and demographic data collected.

**Results:** Based on the mediation models tested, the findings indicated that negative affect mediated the relationship between strength of belief in dysfunctional attitudes
(cold cognition) and depression, and negative appraisals mediated the relationship between dysfunctional attitudes and affect.

**Conclusions:** This study provides some support for the theory that the effect that cold cognition (dysfunctional attitudes) has on depression is via hot cognition (appraisals). In view of the findings, further research in this area may be warranted.
1. Introduction

Mental illness has been identified as the ‘single largest source of burden of disease in the UK’, with depression alone accounting for 7%, more than any other health condition (Royal College of Psychiatrists, 2010 pp.11). There are a range of psychotherapeutic interventions which have been found to be effective at treating depression. Compared with the vast amount of empirical research documenting the positive effects of psychotherapies, relatively little is known about the mechanisms underlying change (Kadzin, 2007; Lambert & Ogles, 2004). One hypothesised mechanism of change is cognition. According to Lazarus (1991a) cognition is defined as one’s knowledge and appraisal of what is happening in the relationship between person and environment. One aspect of cognition that the research suggests mediates the relationship between psychotherapy and severity of depression symptoms across a range of psychotherapeutic modalities is dysfunctional attitudes (DuRubeis et al., 1990; Garratt, Ingram, Rand & Sawalani, 2007; Oei & Free, 1995). This widely researched aspect of cognition is a construct derived from Beck’s (1963, 1983) cognitive model of depression. The Beckian (1963, 1987) model has been highly influential in the clinical field and has led to advancements in our understanding of the role of cognition in emotional disorders. However, thus far, it has done so by focusing on logical, knowledge-based, cognitive processes (cold cognition), rather than the component of thoughts more related to affect (hot cognition), which is a criticism of the approach (David & Szentagotai, 2006).

The terms “hot” and “cold” cognition were initially coined by Abelson (1963) in order to differentiate between cognitions which are affectively laden and motivationally driven, such as appraisals, versus those which are more pure
informational processes. Whilst it is generally accepted that cold cognitions contribute to symptoms of depression, it is argued that they are not the most central to emotion, but rather appraisals are (Lazarus, 1991a; David & Szentagotai, 2006). The ‘heat’ in this context is a metaphor for the emotional response that appraisals generate, of which a central component is affect (Lazarus & Smith, 1988). From this perspective, affect is the immediate consequence of appraisals and depression is the long-term consequence (Lazarus & Folkman, 1987). This perspective maintains the fundamental premise of the Beckian (1967, 1983) model that cognitive processes, such as the way one interprets an event, determine the affective and psychological reactions that one experiences. However, it differs from the model on the basis of the types of cognition that it identifies as being responsible for these effects on psychological wellbeing.

Despite much exploration of the relationship between hot cognition and symptoms of depression in theoretical and therapeutic contexts, there remains a lack of empirical research in this area (David & Szentagotai, 2006; Ellis, 1962; Padesky & Greenberger, 1995; Safran & Greenberg, 1982). This study aims to start addressing this gap by exploring whether hot cognition and affect mediate the relationship between dysfunctional attitudes and symptoms of depression. The introduction begins by identifying cognition as a potential common mechanism of change within psychotherapy for depression. It goes on to outline the Beckian (1967, 1983) cognitive model and to highlight criticisms of the approach, which relate to the emphasis placed on cold cognitions rather than hot. The concept of hot cognition is then further defined and evidence supporting the potential mediating role of hot
cognition in the relationship between cold cognition and depression explored. Finally, the research aims and hypotheses are outlined.

1.1 Potential Mechanisms of Change within Psychotherapy for Depression

(*specific and non-specific*)

The relationship between negative thoughts, such as those which are overly pessimistic, and depression is well established by the research (Coleman, Cole & Wuest, 2010; Garratt et al., 2007). In general, successful interventions have been found to be associated with reductions in this type of thinking (Garratt et al., 2007; Coleman et al., 2010). This finding appears to be robust, across therapeutic modalities, rather than being limited to approaches directly targeting cognition such as cognitive behavioural therapy (CBT) (Coleman et al., 2010; Garratt et al., 2007; Oei & Free, 1995; Whisman, 1993). Indeed, the convergent nature of the evidence of cognitive change as a mediator of symptom reduction has led some authors to conclude that ‘all depression therapies should consider how they address depressive cognition’ (Coleman et al., 2010 p. 215).

Whilst the major models of psychotherapy may propose different mechanisms of change responsible for the effects of treatment, for certain problems, comparisons of these interventions have found similar levels of treatment efficacy. For example, much of the research comparing the effectiveness of Interpersonal Psychotherapy (IPT) and Cognitive Behavioural Therapy (CBT) has yielded comparable results (Cuijpers et al., 2011; Elkin et al. 1989; Jarrett & Rush, 1994; Luty et al., 2007; Power & Freeman, 2012; van Hees, Rotter, Ellermann, Evers, 2013). It is often argued that this finding reflects the contribution of shared non-specific therapeutic factors such as: an emotionally charged confiding therapeutic relationship, a healing
setting, a plausible rationale for symptom development and treatment procedure, and a treatment procedure believed by both the patient and therapist to be restorative (Arkowitz, 1992; Frank, 1971, 1972; Parker & Fletcher, 2007). Whilst this may be the case, another mechanism that is arguably implicit within all psychotherapy is the modification of cognitive processes.

1.2 Beck’s Cognitive Model of Depression

Cognitive models of depression are relevant in that their theoretical basis influences the types of cognition targeted within therapy which has potential implications for clinical outcomes. One of the most influential cognitive models of depression is Beck’s (1967, 1983) diathesis-stress theory of depression, of which a key construct is dysfunctional attitudes. At the core of this model is the assertion that cognitive processes play a role in the aetiology of depression, and that dysfunctional attitudes confer vulnerability to depression (Beck, Rush, Shaw, & Emery, 1979). Dysfunctional attitudes refer to generalised beliefs about oneself, others, and the way that the world works, which represents cold cognition. They tend to be rooted in assumptions which are rigid and overly pessimistic. Dysfunctional assumptions are frequently expressed in absolute and extreme terms and are often based on some external contingent such as, ‘in order to be happy, I have to be successful in whatever I undertake’ (Beck, 1976 pp. 255). Themes often include approval from others, performance evaluation, and perfectionistic standards associated with values of self-worth (Kuiper & Olinger, 1989).

Under this model, dysfunctional attitudes are argued to be the cognitive products of schemas. Schemas are hypothetical cognitive structures that guide information processing, which are typically formed in childhood on the basis of knowledge and
experience gained (Beck, 1976). Dysfunctional attitudes are hypothesised to lay dormant until activated by stressful or context relevant events, such as those ‘analogous to experiences initially responsible for embedding the negative attitude’ (Beck et al., 1979 pp. 16). This constitutes the diathesis-stress component of the model, with the diathesis being dysfunctional attitudes and the stress representing a triggering event. Once activated these attitudes give rise to negative automatic thoughts which dominate thinking and bias information-processing (Beck, 2002). Negative automatic thoughts are hypothesised to contribute to the experience of depression, not only via their relationship with unpleasant affect, but also via their relationship with other depressive phenomena (Beck, 1967). For example, loss of motivation might be based on speculative beliefs such as ‘If I do this, I will only feel worse’ (Beck, 1967 pp. 322).

The positive association between dysfunctional attitudes and symptoms of depression is well supported by the research (Abramson et al., 2002; Haaga, Dyck, & Ernst, 1991; Hill, Oei, & Hill, 1989; Olinger, Shaw & Kuiper, 1987; Riso et al., 2003; Weissmann & Beck, 1978). Dysfunctional attitudes have been found to be associated with various aspects of depressive symptoms including onset, symptom severity, persistence, and relapse, as well as treatment outcomes (Blatt, Quinlan, Pilkonis & Shea, 1995; Blatt, Zuroff, Bondi, Sansilow, & Pilkonis, 1998; Bothwell & Scott, 1997; Lam, Green, Power & Checkley, 1996; Scott, Harrington, House & Ferrier, 1996; Segal, Gema, & Williams, 1999; Sotsky, Glass, Shea, Pilkonis, Collins et al., 1991). Whilst the assertion that dysfunctional attitudes accompany symptoms of depression is fairly well established, ambiguity as to whether they operate as vulnerability factors, concomitants, or consequences, of depression remains (Barnett
1.3 Criticisms of the Beckian Cognitive Model of Depression

Most research exploring cognition has been influenced by Beck’s (1967, 1983) cognitive model of depression. However, this model has been criticised for failing to acknowledge different levels of meaning that account for the qualitative distinction between hot and cold cognition (Power & Champion, 1986; Teasdale and Barnard, 1993). Clinically, these differences are observed when clients refer to differences between knowing in their ‘head’ and knowing in their ‘hearts’ (Teasdale & Barnard, 1993; Stott, 2007). Whilst Beck (1979) acknowledged that patients report a qualitative difference in their experience of cognition “I believe what you are saying intellectually, but not emotionally”, he argued that this merely represents confusion in the terms “thinking” and “feeling” (pp. 302). Thus, he suggested that “when the patient says he believes or does not believe something emotionally, he is talking about degree of belief” (Beck, 1979 pp. 302). Therefore, from a Beckian perspective these differences represent a quantitative variation in a single level of meaning (Teasdale & Barnard, 1993). Accordingly, degree of belief is emphasised clinically as an indication of an area a patient needs to work on, and within research in the operationalisation of measures of cognitive distortion such as the dysfunctional attitude scale (DAS, Weissman & Beck, 1978; Beck, Freeman, Davis et al., 2004).

Beck’s attributing the differences reported between emotional and intellectual belief to degree of belief has been described as unconvincing on the basis that many
clinicians regard “emotional” belief as qualitatively distinct from “intellectual” belief and functionally more important (Teasdale & Barnard, 1993 pp.10). Teasdale and Barnard (1993) argue that failure to acknowledge this distinction has clear implications for therapy as clinical change requires change at a higher-order, emotional level.

Despite the criticisms of the approach, Beck’s (1967, 1983) cognitive model has been highly influential and has led to many theoretical and clinical advances. Arguably, its biggest success is the development of CBT, which has emerged as an effective treatment of depression (Dobson, 1989; Gloaguen, Cottraux, Cucherat & Blackburn, 1998; APA, 2000; NICE, 2004; Cuijpers, 2008). However, despite CBT often being hailed as the ‘gold standard’ approach, approximately 30-40% of those who receive treatment remain unresponsive (David & Szentagotai, 2006). A potential reason for this is that it fails to target the cognitions that are more central to affect, and therefore depression, i.e. “hot” cognitions (David & Szentagotai, 2006). From this perspective, there is less benefit to focusing on cold, logical, thought processes such as the truth value of beliefs as this does not address an individual’s felt sense, which is more typical of hot, emotional, cognitive processing (Teasdale, 1997; Longmore & Worrell, 2006). Given this, it is suggested that whilst CBT has reached its ‘preeminence in the clinical field by betting on cold cognitions’, the next phase of development lies in the construct of hot cognitions, which could increase the efficacy and effectiveness of the approach (David & Szentagotai, 2006 pp. 284).

The importance of eliciting and working with hot cognitions within cognitive therapies has long been explored theoretically and therapeutically, yet empirical research in this area remains lacking (David & Szentagotai, 2006; Ellis, 1962;
Padesky & Greenberger, 1995; Safran & Greenberg, 1982). For example, Padesky & Greenberger, (1995) identify ‘hot thoughts’ as indicators of areas for clinical intervention. Safran & Greenberg (1982) also suggest that “cognitive therapists should be particularly interested in their clients’ hot cognitions since the problems that bring people into therapy rarely stem from cold cognitions, independent of affective processes” (pp. 83).

Rational-Emotive Behaviour Therapy (REBT; Ellis, 1962, 1994) is a branch of CBT that predates Beck’s cognitive model. One of the features that distinguishes REBT from Beckian Cognitive Therapy is the acknowledgment of different levels of cognition and its emphasis on dealing with the proximal causes of negative emotion (hot cognitions) rather than the distal ones (cold cognitions) (David & Szentagotai, 2006). Whilst REBT has not been researched as extensively as CBT, and is not practised as widely, research comparing effectiveness with CBT has found it to be comparable and in some studies more effective at 6-month follow-up (David, Szentagotai, Lupu, & Cosman, 2008).

1.4 What Determines the Heat in Cognition?

If the assertion that hot cognitions are more fundamental to the experience of depression is accepted, then a clear understanding of what provides the heat is required. The terms hot and cold cognition have been used as a means of distinguishing between different types of cognitive processes, appraising (hot) and knowing (cold) (Ableson and Rosenberg, 1958 cited in Ellis, David & Lynn, 2010). This theoretical distinction is a fundamental premise of appraisal theory which differentiates these cognitive processes on the basis of the emotion that they evoke. From this perspective, ‘knowledge’ refers to people’s cognitive representations about
the way the world works in general and in a specific context, which is compatible with the Beckian construct of dysfunctional attitudes (Lazarus & Smith, 1988; Lazarus, 1991a).

‘Appraisal’, on the other hand, refers to one’s evaluation of the significance of knowledge in relation to one’s personal well-being (Lazarus & Smith, 1988; Lazarus, 1991a). According to this theory, if there are no implications for well-being ‘personal stakes’, knowledge remains relatively cold or unemotional (Lazarus & Smith, 1988). It is only through the recognition that one has something to gain or lose in relation to personal goals or well-being that emotion is generated and cognition becomes ‘hot’ (Lazarus, 1991a). In this context ‘heat’ is used as a metaphor for emotional (Lazarus, 2001). Thus ‘although knowledge is a vital part of the cognitive stuff of which personal meaning is made, it does not constitute an appraisal until its implications for personal well-being have been drawn’ (Lazarus & Smith, 1988 pp.284). Therefore, from this perspective, whilst endorsement of a dysfunctional attitude might be associated with depression, it would not be sufficient to cause depression. Rather, it would be the further appraisal of the significance of the attitude for personal well-being that would determine the emotional sequelae.

1.5 Hot Cognition as a Potential Mediator of the Relationship between Cold Cognition and Symptoms of Depression

Some empirical support for the hypothesis that hot cognitions are the most proximal cognitive antecedent to emotion comes from studies such as that by Smith, Haynes, Lazarus and Pope (1993), and David, Ghinea, Macavei and Eva (2005), which investigated the relationship between hot cognitions (operationalised as appraisals) and cold cognitions (operationalised as attributions), and emotion. In both
studies, findings indicated that appraisals (hot cognition) were more strongly related to emotional experience than attributions, and that appraisals mediated the relationship between attributions and emotion.

According to Lazarus & Folkman, (1987), affect is a core component of emotion which has potential implications for psychological wellbeing. In describing this process they refer to the environmental factors, such as demands or resources, and personal characteristics, such as motives and beliefs, which interact to produce appraisals as antecedent variables (Lazarus, 1991b). Appraisals produce short-term and long-term effects. Short-term effects are considered to be the immediate response components of emotion which are comprised of: actions (such as attack, avoidance, posture or weeping) and action tendencies, physiological changes, and subjective states which are typically referred to as affects (Lazarus, 1991b). Affect is the experiential component of an emotional reaction that includes an evaluation or judgment, containing the content of appraisals (Lazarus, 1991b). Long-term outcomes represent the effects of recurrent or chronic emotional patterns on social functioning, physical health and mental health – for example, depression (Lazarus & Folkman, 1987; Lazarus, 1991b). In their model, Lazarus & Folkman, (1987) position the short-term effect of affect as most closely related to long-term effects on psychological wellbeing. This is in contrast to immediate physiological effects which they relate more closely to long-term somatic health/illness, or immediate quality of social encounters which relate to long-term social functioning. Lazarus’ (1991b) thoughts on this process are that people who view life through a pessimistic lens are more likely to appraise experiences negatively, which results in their inability to appreciate and enjoy positive experiences. This recurrent pattern can lead to
anhedonia (loss of interest in previously rewarding or pleasurable activities), which is often a feature of depression (Lazarus, 1991b). From this perspective, psychological wellbeing is adversely affected by faulty processes of appraisal and coping which lead to negative affective experiences.

In sum, from a theoretical perspective there is a great deal of support for the assertion that whilst cold cognitions are strongly related to emotion and emotional disorders, they are not the cognitive antecedents (David & Szentagotai, 2006). Indeed, it would seem that the effect of cold cognition on emotion is mediated by the heat in the cognition (David & Szentagotai, 2006). Appraisals are considered hot cognitions as they are responsible for generating emotion, of which a core feature is affect (Lazarus, 1991a; David & Szentagotai, 2006). Affect represents an immediate and short-term consequence of appraisals. Recurrent patterns of negative emotional experience have been identified as having potential implications for psychological well-being including depression (Lazarus & Folkman, 1987).

Whilst there is some empirical support for the mediating role of hot cognition in the relationship between cold cognition and emotion, research exploring the role of hot and cold cognition in relation to depression is lacking, particularly with respect to dysfunctional attitudes, a core feature of the Beckian cognitive model. Given that hot cognitions have been identified as a potential mediator in the relationship between cold cognition and emotion, and it has been suggested that targeting the cognitions most central to emotion within therapy could increase the potency of current psychotherapeutic interventions, this is an area considered worthy of further research (David & Szentagotai, 2006; Teasdale & Barnard, 1993).
1.6 Research Aims

This study attempts to add to the literature on proposed mechanisms of change within psychotherapy for depression. The aim is to provide empirical evidence on the concept of hot cognition as a key mediator of the relationship between cold cognition (dysfunctional attitudes) and depression. Given the lack of research in this area, it seems pertinent to start by exploring the relevance of hot cognition in relation to dysfunctional attitudes, and depression, constructs which the research suggests are associated. One of the core features of hot cognition is the heat which is produced which refers to emotion. Affect is a key component of emotion theorised to relate to psychological wellbeing i.e. depression (Lazarus & Folkman, 1987). Accordingly, this study also explores the relevance of affect in relation to these variables. After examining correlations between variables in a cross-sectional study, mediation analysis will be used to help explore the extent to which hot cognitions mediate the relationship between dysfunctional attitudes and depression. Based on theory, the predominant direction of causation is assumed to be from dysfunctional attitudes to depression symptoms through ‘hot cognition’ (appraisal) and affect.

Whilst it is appreciated that the cross-sectional design of the study limits inferences about causality, findings from this research could potentially provide some evidence regarding the relationship between these constructs, which could guide future research. Findings from this study could then be integrated into further research looking at other aspects of the cognitive model, and indeed psychotherapy research.
1.7 Hypotheses

*Hypothesis 1:* There is a positive correlation between strength of belief in dysfunctional attitudes and depression. Participants with stronger endorsement of dysfunctional attitudes will report more symptoms of depression.

*Hypothesis 2:* There is a positive correlation between strength of belief in dysfunctional attitudes and variables used to indicate “hot” cognition (appraisal and affect).

*Hypothesis 3:* Participants with stronger endorsement of dysfunctional attitudes will have higher negative appraisal scores. This reflects stronger negative appraisals. This is an indication that, in situations where they are unable to meet the external contingent (e.g. failing to be truly outstanding in at least one major respect) associated with the dysfunctional attitude (e.g. “If I am to be a worthwhile person, I must be truly outstanding in at least one major respect”), that they appraise the threat posed to them as exceeding their personal coping ability.

*Hypothesis 4:* They will also have higher self-reported affect scores, which indicate a negative emotional reaction in response to dysfunctional attitudes. Both measures will be positively correlated with depression.

*Hypothesis 5:* The relationship between strength of belief in the dysfunctional attitudes and depression is mediated by the affect generated by the dysfunctional attitude (Figure 1).

*Hypothesis 6:* The relationship between strength of belief in the dysfunctional attitudes and the affect generated by the dysfunctional attitudes is mediated by appraisals relating to the dysfunctional attitudes (Figure 1).
Figure 1. The hypothesised mediational model.

2. Method

2.1 Design

A quantitative, cross-sectional, online survey design was chosen to examine whether the relationship between dysfunctional attitudes and depression is mediated by hot cognitions. Quantitative methods were selected as they are well suited to testing theory and developing conceptual models (Creswell, 2003). This design was also selected as it allowed data to be drawn from a large sample within a limited time-frame, which increased the amount of data available from which the hypotheses could be tested.

2.2 Ethical Considerations

Faculty of Arts and Human Sciences Ethics Committee (FAHS EC) approval was sought prior to data collection (See Appendix 1). Data was gathered anonymously in order to maintain participant confidentiality. In line with the University of Surrey’s Code on Good Research Practice, anonymised data will be stored at within the Psychology department at the University of Surrey for 10 years on a password protected computer. Data collection procedures adhered to the British Psychological Society (BPS) guidance on internet-mediated research (BPS, 2013) as well as the
BPS Code of ethics and conduct (2009). Data was gathered anonymously and stored in accordance with the Data Protection Act (1998).

Given the personal nature of some of the questions participants were asked to consider, it was acknowledged that some participants may have found aspects of the experience aversive. In address of this, a detailed information sheet stipulating study aims and objectives and the nature of the questions was provided in order to support potential participants in making an informed decision about whether to take part. Participants were informed that they were not obliged to answer any questions and are at liberty to stop at any point during the process without having to submit their data. Participants were provided with contact details should they wish to complain about any aspect of the research. Contact details for the Samaritans and advice about contacting a GP or other organisations such as MIND in the response to experiences of emotional distress were also provided. This was not due to concerns about emotional distress associated with undertaking the survey, but rather to offer some guidance to participants who may be struggling with a pre-existing emotional issue which they may have gained some insight about as a result of taking part.

2.3 Participants

The target population was working age adults aged 18 or older. In order to get a wide range of responses, data was gathered via two approaches. The first approach was to recruit via generic social networking sites such as ‘Facebook’. In order to ensure that individuals with past or current experiences of depression were represented within the research, a second approach was to recruit via advertisements posted on online depression forums. Given the online method, participants were
required to be English literate, have access to the internet and have a reasonable
degree of computer literacy.

2.4 Sample Size

The aim of this study was to recruit a sample of 162. According to the
simulations conducted by Fritz and Mackinnon (2007) for estimating power to detect
effects within mediation analysis, the sample size required to detect small-medium to
medium indirect effect size with 80% power when using bootstrapping methods
ranges between 78 and 162.

2.5 Procedure

The online survey was developed using a survey software tool provided by the
University of Surrey with guidance from the university technical department. Before
‘going live’ the materials from the study were screened by volunteers accessing the
sites from which the samples were draws. Once materials were screened for errors
and feedback was received regarding the acceptability and accessibility of materials,
advertisements were posted on social networking sites and online depression forums
including Facebook, dealingwithdeppression.co.uk, and talk-depression.org. An
opportunistic snowballing sampling method was utilised to gain further responses by
asking people to “re-post” or “share” the link to the advert in order to maximise its
distribution (see Appendix 2). The advert for the study contained a link to the survey
for those who were interested in taking part. Once the link had been accessed
participants were directed to an information sheet and consent form (see Appendix 3
and Appendix 4). Following this information, participants were given the opportunity
to proceed to the survey by ticking a box that indicated their consent. Participants
who did not indicate their consent were informed that they would not be able to
access the survey. However, contact details for the research team were provided in case the potential participant wished to seek further information. Participants who chose to proceed with the study and consented were provided with instructions and a series of questions. Participants were informed that they were not obliged to answer any questions that they did not wish to, but were notified at the end of each page if they had missed a question in order to give them the opportunity to amend this. At the end of the survey, participants were provided with debriefing information including contact details for the research team and several potential sources of support such as MIND and the Samaritans in the event that they felt distressed or that the study had raised any issues for them personally (see Appendix 5).

2.6 Measures

The online questionnaire format can be found in Appendix 6. Basic demographic information was collected at the beginning of the survey including: gender, age, education level, and ethnicity (see Appendix 6.1). Participants were given the option to withhold this information if they so wished.

2.5.1 Measuring depression.

The Patient Health Questionnaire (PHQ-8): The PHQ-8 was used as a measure of depression (see Appendix 6.2). It consists of eight of the nine criteria used to determine a diagnosis of depression according to the DSM-IV (American Psychiatric Association; APA, 1994). Items are drawn from the PHQ-9 which has been found to be a valid and reliable measure of depression (Kroenke, Spitzer, and Williams, 2001). The item omitted assesses suicidal or self-injurious thoughts. The decision to use the measure omitting this item was made based on the anonymous design of the study and therefore an inability to follow up any disclosures that might
be made, possibly with the hope that they would be followed up. Research indicates that deletion of this question in the general population only has a minor effect on scoring as it is the least frequently endorsed item (Kroenke & Spitzer, 2002; Kroenke et al., 2008). Items require participants to rate how often they have been bothered by a range of problems over the past two weeks. For example ‘feeling, down, depressed or hopeless’. Ratings are made on a 4 point Likert scale (ranging from 0 not at all to 3 nearly every day. Scores are calculated by summing scores from all of the items. Scores range between 0 and 24. Scores of 5, 10, 15, and 20 represent the cut-off points for mild, moderate, moderately severe and severe depression, respectively (Kroenke et al., 2008).

2.5.2 Measuring affect.

The measure of self-reported affect was based on a single question which aimed to capture a broad range of negative affective experiences ‘if you have this thought, how upset does it make you feel?’ (see Appendix 6.3). Participants were asked to rate their responses on a 5-point Likert scale (ranging from 1 not at all to 5 extremely upset). The wording and scaling of the item used in the current study was adapted from an item drawn the 10 item International Positive and Negative Affective Scale (I-PANAS-SF; Thompson, 2007). As the purpose of the affect measure was to try and capture an affective state in response to a stimulus (situation associated with dysfunctional attitude) a single item measure was selected. Because of the short administration time, single items measures have the advantage that they reduce fatigue and are convenient for studies that need to track rapidly changing affective states (Ekkekakis, 2012). This method also has a high degree of face validity (Stone, 1995). Whilst the psychometric limitations of single-item methods are
acknowledged, this method of measuring affect has been used previously in research and its validity demonstrated (Giardini & Frese, 2007; Totterdell, 2000). Indeed, the study by Quoidbach and Dunn (2010) found that their single-item measure of positive affect was highly correlated with the widely used, multi-item, Positive and Negative Affect Scale (PANAS; Watson, Clark & Tellegen, 2007; Quoidbach & Dunn, 2010).

2.5.3 Dysfunctional attitudes.

The Dysfunctional Attitudes Scale (short-form 2) was used as a measure of strength of belief in dysfunctional attitudes (DAS-SF2; Beevers, Strong, Meyer, Pilkonis & Miller, 2007). In this study DAS-SF items were presented individually, followed by measures of appraisals associated with situations related to the dysfunctional attitude (see Appendix 6.4). The original Dysfunctional Attitude Scale (DAS; Weissman & Beck, 1978) was a 100 item scale, often divided into two 40 item scales (A & B). The DAS-A is the most frequently used version which has since been refined to two equivalent 9 item short forms using item-response analysis which provides a more efficient assessment of dysfunctional attitudes (DAS-SF1 & DAS-SF2, Beevers et al., 2007). This measure requires people to rate the degree to which they agree with a series of statements such as “If I am to be a worthwhile person, I must be truly outstanding in at least one major respect” (ranging from 1 totally agree to 4 totally disagree). The overall DAS-SF2 score is obtained by summing all of the scores after the reverse item has been re-coded. Higher scores are considered indicative of more distorted thinking which confers vulnerability to depression (Beck et al., 1991). The DAS-SF2 correlates well with the original DAS (.93) and has demonstrated good internal consistency reliability (.83) (Beevers et al., 2007). Good
convergent validity and predictive validity in student and patient samples are also reported (Beevers et al., 2007).

### 2.5.4 Hot cognitions (appraisals).

Appraisals were measured using eight items, originally developed by Kaiser, Major and McCoy (2004), which were adapted to relate specifically to this study (see Appendix 6.4). This method had been used in previous research (Rüsch et al., 2009). Participants were asked to answer appraisal questions in response to a situation associated with a dysfunctional attitude such as “you fail to be truly outstanding in at least one major respect”. Situations were based on them not meeting the condition which the dysfunctional attitude is contingent upon i.e. “If I am to be a worthwhile person, I must be truly outstanding in at least one major respect”. Four items were used to assess primary appraisal such as “this will have a negative impact on my future” and four items to assess secondary appraisal such as “I have the resources I need to handle this situation”. Cronbach’s alphas for primary appraisal reported in previous research were .93 and .88 and for secondary appraisals .86, and .78 (Kaiser et al., 2004; Rusch et al., 2009). Items were scored from 1 to 5 (ranging from 1 totally agree to 5 totally disagree). A single appraisal score is computed by subtracting secondary appraisals scores from primary appraisals scores. Negative difference scores are indicative of stronger negative appraisal, with primary appraisals of threat or harm which exceed personal coping resources.

### 2.7 Analyses

Data was gathered using Qualtrics survey software (Qualtrics, Provo, UT). The data was checked for nonsensical responses. Analyses of the data were conducted using SPSS 22 (IBM Corp, 2013). The demographic data obtained was summarised
and descriptive statistics relating to the variables of interest calculated. Each of the subscales was assessed for normal distribution using visual inspection of histograms. Visual inspection of histograms indicated that the dysfunctional attitude (DAS-SF2), appraisal, and affect, scales were approximately normally distributed (See Appendix 7). The depression measure (PHQ-8) was found to have a positive skew (See Appendix 7, Figure 1). This ‘half-normal distribution’ pattern indicates that the majority of people report minimal, or no, depressive symptoms and beyond this group there is a continuous increase in severity symptoms over a significant proportion of the population (van Praag, de Kloet, & van Os, 2004). This is consistent with what would be expected in a non-clinical, general population (van Praag, de Kloet, & van Os, 2004). Given that only one of the variables needs to be approximately normal for the hypothesis tests for correlation coefficients to be valid, it was considered appropriate to proceed with the use of parametric tests to analyse data (Altman, 1991). Cook’s D was used to check for influential cases within the regression analysis. All Cook’s distances were below 1, and therefore none of the cases were considered to have undue influence (Cook & Weisberg, 1982; Tabachnick & Fidell, 2007).

Correlation coefficients were calculated to examine the extent to which the variables of interest namely, dysfunctional attitudes, depression, and measures of hot cognition, appraisal and affect, were linearly associated. Following this, mediation analyses (i.e. tests of indirect effects) were conducted using bootstrapping methods (Preacher & Hayes, 2008). Bootstrapping using this method has been found to have greater statistical power than the causal steps approach suggested by Baron & Kenny (1986) and therefore reduces the chance of Type II error (MacKinnon, Lockwood,
Hoffman, West, & Sheets, 2002; Preacher & Hayes, 2004, 2008). The mediation analyses were conducted using the PROCESS macro developed by Hayes (2013). This macro provides estimates of the regression coefficients for the regression models used for the Baron and Kenny approach as well as generating direct and indirect effects. The 95% confidence interval of the indirect effects was obtained with 5000 bootstrap resamples as recommended by Preacher & Hayes, (2008). Mediation was determined on the basis of whether the upper and lower limit of the confidence interval contained zero (0) (Preacher & Hayes, 2008). Preacher and Kelley’s (2011) kappa squared method ($k^2$) was used to calculate the effect size of the indirect effect. This method expresses the size of the indirect effect in terms of a ratio which indicates the maximum possible indirect effect that could have been found for the sample, ranging from 0-1. Preacher and Kelly (2011) suggest that the value of $k^2$ be interpreted in relation to Cohen’s (1988) effect size criterion for squared correlation coefficients (i.e. $r^2$), with thresholds for small, medium, and large effect size standing at .01, .09, and .25, respectively (Preacher & Kelley, 2011).

3. Results

3.1 Sample Characteristics

In total 211 participants consented to take part in the study. Of these, 182 completed the full survey. Data from participants who did not complete the study were not included in the analysis. A further 5 participants were excluded for not meeting inclusion criteria relating to age. Data from all remaining participants (n=177) were included in the analysis (see Figure 2). As indicated in Table 1, the sample consisted of 137 females (77.4%) and 40 males (22.6%). Participants’ ages ranged from 18 to 71. The reported ethnic classifications and levels of education can
be found in Table 1. In relation to the UK ethnic composition, as determined by the 2011 UK census (Office of National Statistics; ONS, 2011), there was an overrepresentation of participants identifying themselves as White and an underrepresentation of those identifying as Asian (Table 1). The proportion identifying themselves as Mixed and Black was comparable. Participants within the sample had higher levels of education than would be found in the UK population when basing figures on the ONS, 2011 census (Table 1).

Figure 2. Flow chart indicating how the final sample size was arrived at.
Table 1

Demographic characteristics as a percentage of the sample

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Percentage (%)</th>
<th>N =177</th>
<th>UK population ONS, 2011 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (mean years)</td>
<td>39.9 (SD = 12.9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 – 24</td>
<td>10.2</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>25 – 34</td>
<td>33.9</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>35 – 44</td>
<td>24.9</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>45 – 54</td>
<td>16.4</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>55 – 64</td>
<td>12.4</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>65 +</td>
<td>1.7</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Undisclosed</td>
<td>0.6</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White (British; Irish; Other)</td>
<td>92.7</td>
<td>164</td>
<td>86</td>
</tr>
<tr>
<td>Mixed (White and Black Caribbean; White and Black African; White and Asian; White and other)</td>
<td>2.2</td>
<td>4</td>
<td>2.2</td>
</tr>
<tr>
<td>Asian or Asian British (Indian; Pakistani; Bangladeshi; Other)</td>
<td>1.7</td>
<td>3</td>
<td>7.5</td>
</tr>
<tr>
<td>Black or Black British (Caribbean; African; Other)</td>
<td>2.9</td>
<td>5</td>
<td>3.4</td>
</tr>
<tr>
<td>Undisclosed</td>
<td>0.6</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Level of education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No formal education</td>
<td>5.1</td>
<td>9</td>
<td>23</td>
</tr>
<tr>
<td>GCSE, O’Level, NVQ equivalent</td>
<td>21.5</td>
<td>38</td>
<td>32</td>
</tr>
<tr>
<td>A’level equivalent</td>
<td>23.7</td>
<td>42</td>
<td>12</td>
</tr>
<tr>
<td>Undergraduate</td>
<td>27.1</td>
<td>48</td>
<td>27</td>
</tr>
<tr>
<td>Postgraduate</td>
<td>20.9</td>
<td>37</td>
<td>6</td>
</tr>
<tr>
<td>Undisclosed</td>
<td>1.7</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

3.2 Study Variables

Means, Standard Deviations and alpha coefficients for study variables are presented in Table 2. The Cronbach’s alphas (α) for all the study variables were good to excellent (> .8). There was a wide range of depression scores found within the sample with, 20.9% (n=37) having met the criteria for mild depression (PHQ-8: 5-9), 19.2% (n= 34) for moderate depression (PHQ-8: 10-14), 14.7% (n= 26) for moderately severe depression (PHQ-8: 15-19) and 12.4% (n=22) for severe depression (PHQ-8 <20). Thirty two point eight percent (n= 58) of the sample were found to have no significant depressive symptoms (PHQ-8 >5).
Given that appraisal scores are composites, these have been broken down into their constitutive parts, *perceived threat* (primary appraisal) and *perceived coping ability* (secondary appraisal). Appraisal scores were calculated by subtracting perceived coping ability from perceived threat, with negative difference scores indicating the appraisal of perceived threat as high and exceeding personal coping resources.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Minimum Score (Sample Score)</th>
<th>Maximum Score (Sample Score)</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Cronbach’s α</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>DYSFUNCTIONAL ATTITUDES-SF</em></td>
<td>9 (10)</td>
<td>36 (34)</td>
<td>21.10</td>
<td>5.617</td>
<td>.883</td>
<td>.244</td>
<td>-.582</td>
</tr>
<tr>
<td>Affect</td>
<td>9 (9)</td>
<td>45 (41)</td>
<td>20.74</td>
<td>9.210</td>
<td>.929</td>
<td>.468</td>
<td>-.830</td>
</tr>
<tr>
<td>Appraisal:</td>
<td>-144 (-138)</td>
<td>144 (138)</td>
<td>17.90</td>
<td>53.747</td>
<td>-</td>
<td>-.299</td>
<td>-.334</td>
</tr>
<tr>
<td>Perceived Threat</td>
<td>36 (36)</td>
<td>180 (174)</td>
<td>106.18</td>
<td>31.077</td>
<td>.980</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived Coping</td>
<td>36 (36)</td>
<td>180 (178)</td>
<td>88.28</td>
<td>27.196</td>
<td>.963</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression (PHQ-8)</td>
<td>0 (0)</td>
<td>27 (24)</td>
<td>9.51</td>
<td>7.035</td>
<td>.924</td>
<td>.455</td>
<td>-1.001</td>
</tr>
</tbody>
</table>

### 3.3 Correlation Analyses

Pearson’s correlation coefficients were calculated to examine the relationship between all of the study variables. As shown in the correlation matrix (Table 3), all the variables were significantly correlated in the hypothesised direction. Therefore, strength of belief in dysfunctional attitudes, negative affect, and depression, were all
positively correlated. Negative appraisals were negatively correlated with all of the study variables. Negative difference appraisal scores are indicative of appraisals of threat or harm which exceed personal coping resources. Cohen (1988, 1992) proposes small, medium and large effect sizes as $r = .10$, .30, and .50, respectively. In line with this, all effect sizes were large or approaching large.

Table 3

<table>
<thead>
<tr>
<th>DYSFUNCTIONAL ATTITUDES-SF</th>
<th>Appraisal</th>
<th>Affect</th>
<th>PHQ-8</th>
</tr>
</thead>
<tbody>
<tr>
<td>DYSFUNCTIONAL ATTITUDES-SF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appraisal</td>
<td>-.823**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affect</td>
<td>.511**</td>
<td>-.580**</td>
<td></td>
</tr>
<tr>
<td>PHQ-8</td>
<td>.491**</td>
<td>-.654**</td>
<td>.539**</td>
</tr>
</tbody>
</table>

$N=177$; **indicates $p < .001$ (two-tailed).

3.4 Mediation Analyses

3.4.1 Is the relationship between dysfunctional attitudes and depression scores mediated by the affect generated by the dysfunctional attitudes?

The first stage in testing for mediation involved following Baron and Kenny’s (1986) four step approach. The assumptions of this approach are that in order to support a mediation hypothesis several steps must be achieved. The first is that there should be evidence of a direct effect between the independent (X) and dependent (Y) variables,
which in this case was strength of belief in dysfunctional attitudes and depression, respectively (path $c = .491$, $p < .001$). The second is that the independent variable should significantly predict the mediator, affect (path $a = .511$, $p < .001$). The third is that the mediator should predict the dependent variable, depression (path $b = .539$, $p < .001$). The final step involves calculating the indirect effect ($c' = .292$, $p < .001$), which is the effect that the independent variable has on the dependent when controlling for the effects of the mediator (M). According to Baron and Kenny, full mediation can only be concluded if the effects of X on Y are no longer significant after controlling for M. If steps 1 to 3 are met and $c'$ is smaller than $c$ then, by their criteria, mediation can be concluded. If $c'$ is not significantly different from zero then total mediation is assumed, otherwise partial mediation is assumed. Findings from the analyses indicated that the first three steps were fulfilled; however the effect of the strength of dysfunctional attitudes (X) on depression (Y), after controlling for affect (M), remained significant which is consistent with partial mediation. The regression coefficients for each of the regression models for the Baron and Kenny approach can be found in Table 3. A major problem with the Baron and Kenny approach is that there is no statistical test for whether $c'$ is less than $c$ (i.e. $c - c' > 0$). Therefore the significance of the indirect effect was tested using the Preacher and Hayes (2004, 2008) bootstrapping approach. The bias-corrected bootstrap confidence interval for the indirect effect based on 5000 bootstrap samples was entirely above zero which further supported the mediation hypothesis (Table 3). The effect size obtained using Preacher and Kelly’s (2011) kappa squared method indicated an effect size that was approaching large ($k^2 > .20$)
A. Direct Effect

\[
\text{Strength of belief} \rightarrow \text{Depression (DV)} \\
C = .491^{**}
\]

A. Indirect Effects

\[
\text{Strength of belief} \rightarrow \text{Affect (M)} \rightarrow \text{Depression (DV)} \\
a = .511^{**} \\
b = .539^{**} \\
c' = .292^{**}
\]

Figure 3. Diagram indicating mediation analysis (** p < .001).

3.4.2 Appraisal as a Mediator of the Relationship between Dysfunctional Attitudes and Affect

Using the same approach as above, the mediating effect of appraisal in the relationship between strength of dysfunctional attitudes and affect was first explored using Baron and Kenny’s (1986) four step approach. This involved evidencing a direct effect between strength of dysfunctional attitudes and affect (path c = .511, p < .001), evidencing that strength of dysfunctional attitudes predicts appraisals (path a = .823, p < .001) and that appraisals predict affect (path b = .580, p < .001). Finally, that the effect that strength of dysfunctional attitudes has on affect after controlling for appraisal is no longer significant (c’ = .104, p < .001. As indicated in Table 3, all four assumptions necessary for mediation were met. This was further supported by a test
of the significance of the indirect effect which gave a bias-corrected bootstrap confidence interval for the indirect effect, based on 5000 bootstrap samples, entirely above zero. The effect size was large ($k^2 .27$).

A. **Direct Effect**

![Diagram indicating mediation analysis](attachment:figure4.png)

**A. Indirect Effects**

![Diagram indicating mediation analysis](attachment:figure4.png)

*Figure 4.* Diagram indicating mediation analysis (***$p < .001$***).

### 3.4.3 Checking Assumptions of Bootstrapping Method

Bootstrapping methods require that the assumptions for regression for all paths (a, b, c, c’) have been met with the exception of the assumptions of homogeneity of variance and collinearity (Preacher & Hayes, 2008). Visual inspection of histograms and normality plots confirmed that the residuals were approximately normally distributed (See Appendix 8). Graphs plotting standardised residuals against
predicted values demonstrated that the assumption of linearity was met (See Appendix 9). As all Cook’s distances were below 1, none of the cases were considered to have undue influence (Cook & Weisberg, 1982; Tabachnick & Fidell, 2007). Given that the required assumptions were met, it was considered appropriate to apply bootstrapping methods.
### Table 4

**Summary of findings from single mediation model analyses.**

<table>
<thead>
<tr>
<th>Mediator (M)</th>
<th>Regression Coefficients</th>
<th>Bootstrap results for Indirect Effects (95% CI)</th>
<th>Effect Size Results (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Effect of IV on M (a)</td>
<td>Effect of M on DV (b)</td>
<td>Effect of IV on DV (c)</td>
</tr>
<tr>
<td></td>
<td>SE .107</td>
<td>SE .049</td>
<td>SE .082</td>
</tr>
<tr>
<td></td>
<td>t 7.865</td>
<td>t 8.468</td>
<td>t 7.454</td>
</tr>
<tr>
<td></td>
<td>p .000</td>
<td>p .000</td>
<td>p .000</td>
</tr>
<tr>
<td>Appraisal</td>
<td>B -7.873</td>
<td>B -.099</td>
<td>B .838</td>
</tr>
<tr>
<td></td>
<td>SE .411</td>
<td>SE .011</td>
<td>SE .107</td>
</tr>
<tr>
<td></td>
<td>t -19.145</td>
<td>t -9.428</td>
<td>t 7.865</td>
</tr>
<tr>
<td></td>
<td>p .000</td>
<td>p .000</td>
<td>p .000</td>
</tr>
</tbody>
</table>
4. Discussion

4.1 Overview

The purpose of this study was to contribute to the literature looking at potential mechanisms of clinical change within psychotherapy for depression by providing some empirical data on the relationship between the types of cognition which are hypothesised to confer vulnerability to depression (dysfunctional attitudes), and symptoms of depression. This included looking at some potential mediators of that relationship, appraisals and affect. Dysfunctional attitudes are conceptually similar to the concept of cold cognition, whereas appraisals are consistent with the concept of hot cognition.

The findings from the correlational analyses were consistent with what one would expect from a cross-sectional analysis of Beck’s (1967, 1983) cognitive model of depression, in that, individuals who endorsed dysfunctional attitudes more strongly reported more severe symptoms of depression. Whilst this finding was highly significant, appraisal and affect were found to have a stronger relationship with severity of depression symptoms. Therefore, stronger negative appraisals, and higher levels of negative affect associated with dysfunctional attitudes, were correlated with increased symptom severity. This is consistent with the idea of hot cognition and affect as being key constructs in relation to depression, potentially more so than cold. This would be consistent with the argument put forward by David & Szentagotai (2006), that hot cognitions are more closely related to emotion than cold, and therefore potentially more central to depression.
The relationship between negative appraisals, which are indicative of a perception of threat which outweighs perceived coping ability, and depression was stronger than that of negative appraisal and affect. Given that appraisal theory posits that affect is the immediate effect of appraisals, and depression the long-term, one might have expected the reverse (Lazarus & Folkman, 1987). This finding may reflect conceptual differences in the measure of affect, which measured intuitive and immediate affective experience, and measures of dysfunctional attitudes and appraisal which were both cognitive constructs. It is also possible that this finding reflects the operationalisation of negative affect which was measured via a single item measure, as this may not have adequately captured the range of immediate negative affective experiences hypothesised to contribute to depression.

The strongest correlation found was between dysfunctional attitudes and appraisal measures. Thus, the degree to which people rated their belief in an attitude was highly correlated with their appraisals, with higher belief ratings being associated with more negative appraisals. The strength of the correlation suggests that people who strongly endorse dysfunctional attitudes may be more prone to negative appraisals. This is consistent with Beck’s (1967) cognitive model of depression which posits that, when activated, dysfunctional attitudes lead to cognitive distortions which have a systematic biasing effect on subsequent information processing. This culminates in a negative view of the self, world, and future, referred to as the cognitive triad (Beck, 1967). This is also consistent with Lazarus’ (1991b) theory that people who have a pessimistic disposition may well be unable to appreciate or recognise anything positive and therefore be more prone to negative appraisals.
4.2 Affect as a Mediator in the Relationship between Dysfunctional Attitudes (cold cognitions) and Depression

One of the main aims of this study was to explore the concept of hot cognition (appraisals) and affect as mediators in the relationship between the types of cognition that are hypothesised to confer vulnerability to depression, dysfunctional attitudes (cold cognitions), and symptoms of depression. In this study, hot cognitions were operationalised as appraisals, which are the cognitive antecedent to affect. Affect can be thought of as a core component of emotion, which represents one’s subjective state in response to an appraisal and has implications for psychological wellbeing (Lazarus & Folkman, 1987). As simple mediation models were used to test the proposed model, this was done in two stages. The first stage looked at the mediating role of affect in the relationship between dysfunctional attitudes and depression. Indeed, the findings provided some support for the hypothesis that stronger endorsement of dysfunctional attitudes was associated with greater severity of depressive symptoms through higher levels of negative affect. This suggests that the effect that cold cognition has on depression may be via affect which is a core component of emotion.

4.3 Appraisals as Mediators of the Relationship between Cold Cognition (Dysfunctional Attitudes) and Affect

The next stage of the analysis involved testing whether appraisals mediated the relationship between dysfunctional attitudes (cold cognition) and affect. The findings from this study provide some empirical support for the hypothesised mediating role of appraisals, which may suggest that the effect that strength of dysfunctional attitudes have on levels of negative affect is via their effect on the strength of
negative appraisals. This is consistent with Lazarus and Folkman’s (1987) appraisal theory of emotion and the notion that appraisals are an important component of cognition which relates to affect.

4.4 Clinical and Research Implications

If assumptions about the predominant direction of causation are correct, these findings imply that appraisals account for at least some of the effect that dysfunctional attitudes have on affect. Given that negative affect is hypothesised by both, the Beckian (1967, 1983) cognitive model of depression, and appraisal theory (Lazarus and Folkman’s, 1987), to contribute to depression, this has potential implications for therapy. Within traditional CBT, patients are encouraged to challenge the validity of their negative thoughts (Beck, 1979). However, if appraisals are more central to the experience of depression, it may be more effective to target cognitive appraisals of events than to specifically challenge the truth validity of dysfunctional cognitions. Given that appraisals represent evaluations of threat or harm posed by an event, in respect of perceived coping resources, it may be more beneficial to tailor interventions to focus more specifically on these areas. This is not to say that these areas are not currently targeted within CBT, or that the traditional methods of challenging beliefs would not be an effective approach, but merely that focusing on these components of appraisal may prove more fruitful than challenging more generalised beliefs, which represent cold cognition.

As discussed, the Beckian (1967, 1983) cognitive model has been highly researched, and the link between dysfunctional attitudes and depression has been found to be fairly robust. The model suggests that dysfunctional attitudes, when activated, give rise to NATs which contribute to the subsequent experience of
depression (Beck, 1967). This is via their association with unpleasant affect, in addition to their effects on behaviour (Beck, 1967). Whilst NATs were not explored within this study, the finding that appraisals mediate the effect of dysfunctional assumptions on affect, suggests that there could be a role for appraisals in generating, or contributing to NATs, or a potential interplay between these constructs.

Given that much of the research looking at cognition in relation to depression has used scales based on the Beckian (1967, 1983) cognitive model of depression, such as the Dysfunctional Attitude Scale (Weissman & Beck, 1978), the findings from this research may also have potential implications for future research. If hot cognitions are indeed a mediator of the relationship between cold cognitions (such as dysfunctional attitudes) and depression, it may be useful to broaden the types of cognition typically explored within research to incorporate measures of hot cognition.

4.5 Strengths, Limitations and Future Research

4.5.1 Sample

The purposive sampling method used within this study meant that the sample was drawn from two populations, the general population and people accessing online depression forums. This approach was adopted as a means of obtaining a wide range of scores relating to symptoms of depression. One of the major limitations of this approach is that it is susceptible to sampling bias which limits generalisability. This includes over, or underrepresentation, of individuals or groups within the population. In the sample drawn, the distribution of depression scores obtained was approximately ‘half normal’ which is what would be expected in the general population (van Praag, de Kloet, & van Os, 2004). This suggests that had sampling
been restricted to the general population, such a broad range of scores may not have been obtained. Analyses of sample characteristics indicated that there were similar trends in the sample as you would expect to find in the general UK population. However, there was an overrepresentation of participants identifying as ‘White’ and with higher levels of education than would be expected. There was also an overrepresentation of females. This has potential implications for generalisability as there are higher rates of depression reported by females within the general population, in addition to a higher prevalence cognitive correlates of depression, such as rumination (Nolen-Hoeksema, Larson, & Grayson, 1999). Whilst it is acknowledged that random sampling methods would have strengthened the study and enhanced the generalisability of the findings, it was not considered feasible in relation to the constraints of this particular study. Another disadvantage of the sampling method was that all of the data was collected using the same online database and therefore responses from both populations were pooled. This prevented analyses of the individual samples to be made which would have provided more insight regarding the distribution of scores within each sample. This may have provided a better indication of the success of the sampling method.

### 4.5.2 Design

The design used in this study was cross-sectional. Given this, the predominant direction of causation was assumed on the basis of theory. Therefore, the data did not allow for inferences of causality or temporality to be made. The possibility of reverse causality or parallel change cannot be ruled out. Whilst it was acknowledged that a longitudinal design would potentially allow for more inferences about causality to be made, this was not considered feasible in terms of time constraints. This is a potential
direction for future research as it would be able to provide more insight into the temporal sequence of the relationships between the variables explored in this study. The study used an anonymous, online, method of data collection which was reliant on self-report. Whilst self-report methods are susceptible to bias, the constructs being measured are by nature highly subjective and therefore this method was considered appropriate. The anonymity of the study aimed to mitigate some of the potential response bias.

4.5.3 Measurement

One of the challenges of this study was finding a means of operationalising appraisal, which may reflect the conceptual complexity of this construct brought to the fore by the nature of research processes (Monroe & Kelley, 1995). Given that there is not currently a widely used measure of appraisal, a potential avenue for future research might be to replicate the study with alternative measures of appraisal which could then be compared. This study utilised a single item measure of affect. Single-item measures are convenient for studies aiming to track rapidly changing affective states as they are quick to administer, shorten interruptions of competing information / tasks, and reduce respondent fatigue (Ekkekakis, 2012). However, it is acknowledged that these methods are less reliable as they are more susceptible to error. Whilst affect is considered a core component of emotion, it does not represent the other components such as physiological reaction, actions, and action tendencies. Given the above, future research which aims to build on these findings might benefit from considering multi-item measures of affect as well as alternative measures of the other aspects of emotion which could potentially be less reliant on self-report. Another limitation of the affect measure in relation to the cross-sectional design is
that it did not account for blunted affect, marked by a lack of affective expression, which can be a feature of depression (Trzepacz & Baker, 1993). Again, a longitudinal design would have enabled more inferences to be made about the temporal sequence of these variables and in particular whether the cognitive constructs measured (dysfunctional attitudes and appraisals) and the negative affect generated in response to these constructs precede depression.

One of the findings from the analyses of study variables was that there was a particularly high correlation (r = -0.838) between the measures capturing appraisals and dysfunctional attitudes, which could suggest that the measures used to capture these constructs are not well differentiated. If based on face validity this does not appear to be the case and the way that the constructs have been measured appear to differentiate them well. However, an exploratory factor analysis may provide more insight into whether they are indeed distinct from one another.

4.5.4 Study variables

It was not feasible within this study to explore all aspects of the cognitive model of depression. Certainly, the cross-sectional design did not allow for inferences about the diathesis-stress component of the model to be made. However, this study could have potentially been improved by incorporating a measure of NATs, which are another key cognitive construct within the Beckian (1967, 1983) model. In particular, it would have been interesting to observe whether appraisals mediate the relationship between dysfunctional attitudes and NATs. This could potentially be an interesting direction for future research, as would studies which incorporate other aspects of the cognitive model, such as the diathesis-stress aspect.
4.5.5 Analyses

Simple mediation models were used within this study as the main method of analyses. Whilst it is acknowledged that other methods, such as structural equation modelling, might be better suited to mediation models incorporating multiple sequential mediators, these methods were not adopted in this particular study due to feasibility.

5. Conclusion

The main findings from this study suggest that cold cognition has an effect on depression via affect and that appraisals mediate the relationship between cold cognition and affect. Taken together these findings offer some empirical support for the concept of hot cognition and affect as mediators in the relationship between cold cognition and depression. This is consistent with both, appraisal theory, and the arguments put forward by David & Szentagotai (2006), which suggest that hot cognitions are more central to the experience of depression than cold. Whilst it is true that interpretations of the findings from this study should be made in the context of the limitations highlighted, the findings from this study suggest that further research into the role of hot cognition in relation to depression and as potential psychotherapeutic mechanisms of change is warranted.
6. References


Gotlib, H. S. Kurtzman, & M. C. Blehar (Eds.). *The cognitive psychology of depression* (pp. 585-606). Hove: Psychology Press.


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Appendix 1: Favourable Ethical Opinion Letter

Faculty of Arts and Human Sciences
Ethics Committee

Chair’s Action

Proposal Ref: 1078-PSY-14
Name of Student/Trainee: CHRISTINA PALMER
Title of Project: What mediates the relationship between dysfunctional attitude and depression? The role of hot cognition.
Supervisor: Linda Morison
Date of submission: 22nd December 2014
Date of confirmation email: 27th January 2015

The above Research Project has been submitted to the FAHS Ethics Committee and has received a favourable ethical opinion from the Faculty of Arts and Human Sciences Ethics Committee with minor conditions. Confirmation has been received that the conditions stipulated after ethical review have now been addressed and compliance with these conditions has been documented.

The final list of documents reviewed by the Committee is as follows:

Protocol Cover sheet
Summary of the project
Detailed protocol for the project
Participant Information sheet
Consent Form

This documentation should be retained by the student/trainee in case this project is audited by the Faculty Ethics Committee.

Signed: [Signature]
Professor Bertram Opitz
Chair

Dated:

Please note: If there are any significant changes to your proposal which require further scrutiny, please contact the Faculty Ethics Committee before proceeding with your Project.
Appendix 2: Research Study Advertisement

**Volunteers Needed**

**WE ARE DOING A RESEARCH PROJECT TO TRY AND FIND OUT HOW DIFFERENT TYPES OF THOUGHT CONTRIBUTE TO DEPRESSION AND WE NEED VOLUNTEERS.**

**Why take part?** Changes to health services are based on the findings of research studies. It is only by researching real people and real issues, that we can discover what’s working and what needs improving. Your input could help us learn more about the things that influence depression which can potentially inform treatments to make them more effective.

**Who can take part?** We are looking for working age adults (18 years and above).

**What is involved?** You will be asked to complete an online survey which asks questions about how certain thoughts make you feel and what they mean to you personally. You will also be asked to answer questions about mood. If you find a question too personal or upsetting, you don’t have to answer it. If you feel upset about any aspect of taking part in this research you can contact me to discuss: christina.palmer@surrey.ac.uk.

If you are interested in taking part and would like to know more please follow this link [LINK]

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This study is being conducted by Christina Palmer as part of the PsychD program in Clinical Psychology at the University of Surrey. The principal supervisor is Linda Morison who can be contacted by email or telephone: l.morison@surrey.ac.uk / 01483 686875.

This study has received a favourable opinion from the Faculty of Arts & Human Sciences Ethics Committee.
Appendix 3: Information Sheet

What mediates the relationship between dysfunctional attitude and depression? The role of hot cognition

Introduction

My name is Christina Palmer and I am a trainee clinical psychologist based in the Psychology Department at the University of Surrey, Guildford. As part of my training to become a clinical psychologist, I have to conduct research with members of the public.

I am researching what influences the relationship between negative thoughts and depression and I would like to invite you to help me with this by taking part in my study. To help you decide if you would like to take part, please read this Information Sheet so that you know what you will be asked to do.

What is the study about?

I am interested in researching what influences the relationship between negative thoughts and depression. In particular I am interested in looking at what makes a thought emotional and whether emotional thoughts are more relevant to depression than those which are not.

Do I have to take part?

No, taking part in this study is entirely up to you. To help you decide whether or not to take part, you can talk it over with friends, family, colleagues, health professionals, etc. You can also contact me for further information and I will be happy to answer any queries. My contact details are at the end. Even if you agree to take part, and then change your mind after you have started you can choose not to submit your responses and they will not be included in the final analysis. You do not have to answer any questions you do not want to.

What will I have to do?

This study is an online survey. Taking part will involve answering a series of questions about thoughts that you might have as well as more specific questions about how certain thoughts make you feel or what relevance they have to you personally. You will also be asked to answer questions about mood.

How do I agree to take part?

You will be asked to read the Consent Form, and tick the box to say that you have understood what the research is all about and that you have had the chance to ask me any questions first. The Consent Form also says that all information about you is kept confidential in accordance with the Data Protection Act 1998.
**Does what I say get shared with anyone else?**

What you say will remain confidential and will only be seen by myself and my supervisor. Research is always supervised by someone senior to me, who ensures that I am conducting the research properly and according to ethical guidelines. You will not have to disclose your name and other personal details about you will be kept anonymous in the study. This includes any information about your age, gender, ethnicity, religion, etc. or any other information that would identify you personally. My supervisor’s name and contact details are at the end.

All information gathered during this research study will be stored securely in a locked filing cabinet at the University of Surrey, in accordance with the Data Protection Act 1998 and will be destroyed after ten years.

**What happens when the research study is completed?**

Research takes time, often years, to complete. By then you may have forgotten about it. Researchers usually like to have their research findings published in relevant journals so that others working in the same field can learn more. These are usually academic journals which the public don’t tend to see. I can send you a copy of the final research study if you would like, plus copies of any articles in which the research is published. This piece of research will be completed in March, 2015. You can visit the University of Surrey library as a day visitor if you’d like to read any of the journals (however, you won’t be able to take any books or publications away with you). I can give you information about how to do that.

Sometimes we present our research findings at meetings (for instance, at service users’ and carers’ support groups or conferences). Again, all personal details about you will be kept confidential (your real name, your age, gender, where you live, etc), and no-one will be able to identify who you are.

**What are the benefits of taking part in this research?**

Changes to health services are based on the findings of research studies. It is only by researching real people and real issues, that we can discover what is working and what needs improving. Learning about the factors that influence depression can potentially help us to tailor treatments to make them more effective. Looking at the role of thought processes is particularly important as these are often addressed in talking therapies like cognitive behavioural therapy (CBT). Your input to this research is therefore vital. While you may not see any immediate change or benefit to yourself or your family, you will be contributing to an important piece of research that will improve the health treatment and services of others in the future.

**Are there any downsides of taking part?**

You may find some of the questions quite personal. I am not being intrusive by asking these questions as they are needed for my research. If you find a question too personal or upsetting in any way, you don’t have to answer it. If you feel distressed about any aspect of taking part in this research you can contact me to discuss this or you can discuss this with
whoever is in charge of your care (GP / Psychiatrist / Care Coordinator etc.). You can also contact the [Samaritans on 08457 90 90 90 or MIND 0300 123 3393](#).

**What if there is a problem?**

If you have any concerns about any aspect of the way you have been treated during the course of the research study, then you can contact my supervisor. Her name is Linda Morison and her contact details are at the end.

**Has the research been approved by any committee?**

The study has been approved by the Ethics committee at the University of Surrey.

I hope I have answered all of your questions about the research study, but please feel to ask me anything else that I have not covered. My contact details and those of my supervisor are below.

Thank you for taking the time to read this Information Sheet.

**Research being conducted by:**

Christina Palmer  
Title: Trainee Clinical Psychologist  
Work address: Psychology Department, University of Surrey, Guildford, GU2 7XH  
Work telephone number: 01483689441  
Email: christina.palmer@surrey.ac.uk

**Supervised by:**

Linda Morison  
Title: Senior Research Tutor  
Work address: Psychology Department, University of Surrey, Guildford, GU2 7XH  
Work telephone number: 01483 686875  
Email: l.morison@surrey.ac.uk
Appendix 4: Consent Form

Consent form for people who are taking part in this research

- I agree to complete the online questionnaire.
- I have read and understood the Information Sheet.
- I understand that my decision to take part in this project is entirely voluntary.
- I have been given information by the researcher about what the project is about, where and why it is being done, and how long it is likely to take.
- I have been given information by the researcher of what I will be expected to do. I have been told about any possible distress which taking part in the project may cause me and have been directed to sources of support should this happen.
- I am aware that I can contact the researcher if I become upset or worried by any part of the research process and my involvement in it.
- I have been given the contact details for the research team so that I can ask the researcher questions about the research before participating.
- I am also aware that the researcher does not hold any clinical responsibility for me and that any distress that I experience that is not related to taking part in this project should be discussed with those who do hold this responsibility (care coordinator / therapist / psychiatrist / GP etc.) rather than the researcher.
- I understand that all personal data is held and processed in the strictest confidence, and in accordance with the Data Protection Act (1998). I have been informed that all questionnaires will be anonymised.
- I am happy for the researcher to include my data in any published studies as long as this information remains anonymous.
- I understand that if at any point I am uncomfortable with the questions being asked or I do not wish to continue for any reason I can stop and choose not to submit my responses. This means that they would not be included in the results. I also understand that once I have submitted my data due to the anonymous nature of the survey that I will not be able to request to have my data removed. Therefore, I understand the importance of taking my time to decide whether I want to submit my data before actually submitting it.
- I have read and understood everything written above and have chosen to consent to participating in this study. I have been given enough time to think about this and agree to comply with the instructions and restrictions of the project.

I Accept ☐ ☐ I do not Accept ☐ ☐
Appendix 5: Debriefing Information

Thank you for taking part in this research.

If you have any questions about any aspect of the research please contact Christina Palmer who will be happy to discuss this with you.

If you feel distressed about any aspect of taking part in this research it is recommend that in the first instance you discuss this with your GP. However, you can also discuss this with a member of the research team (details below). You can also contact the Samaritans on telephone number 08457 90 90 90 or via email jo@samaritans.org. For information on mental health issues you can also contact MIND on 0300 123 3393.

If you have any concerns about any aspect of the way you have been treated during the course of the research study, then you can contact the research supervisor. Her name is Linda Morison and her contact details are at the below.

Research being conducted by:
Christina Palmer
Title: Trainee Clinical Psychologist
Work address: University of Surrey, Psychology Department, Guildford, GU2 7XH
Telephone number of administrator: 01483 68 9441 (messages can be left on this number).
Email: christina.palmer@surrey.ac.uk

Supervised by:
Linda Morison
Title: Senior Research Tutor
Work address: University of Surrey, Psychology Department, Guildford, GU2 7XH
Telephone number of administrator: 01483 68 6875
Email: l.morrison@surrey.ac.uk
Appendix 6: Online Questionnaire

6.1 Demographic Information

Please state your age ...........

Your sex:
Male [ ] Female [ ]

Marital Status:
Single [ ] In a relationship [ ] Married [ ] Cohabiting [ ]

To which Ethnic Origin group do you most closely belong: (please tick)

- Black (Caribbean) [ ]
- Bangladeshi [ ]
- Black (British) [ ]
- Black (African) [ ]
- Chinese [ ]
- Indian [ ]
- Pakistani [ ]
- White (British) [ ]
- White (European – non UK) [ ]
- White (European) [ ]
- Prefer not to say [ ]
- Other (please state) [ ] ..............................................................

Nationality .................................................................

Employment:

Please tick which category reflects most closely your employment status:

a) Full-time [ ]
b) Part-time [ ]
c) Unemployed [ ]
d) In education [ ]

If you work (or have worked), please state the type of work you do (or did) (e.g. teacher in primary school, librarian etc)........................................................................................................................................................................................................

............
### 6.2 The Patient Health Questionnaire (PHQ-8):

**Instructions:** *Over the last 2 weeks* how often have you been bothered by any of the following problems?

<table>
<thead>
<tr>
<th>Problem</th>
<th>not at all</th>
<th>several days</th>
<th>more than half the days</th>
<th>nearly every day</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Little interest or pleasure in doing things</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td><strong>Feeling down, depressed, or hopeless</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td><strong>Trouble falling or staying asleep, or sleeping too much</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td><strong>Feeling tired or having little energy</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td><strong>Poor appetite or overeating</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td><strong>Trouble concentrating on things, such as reading the newspaper or watching television.</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td><strong>Feeling bad about yourself — or that you are a failure or have let yourself or your family down.</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td><strong>Moving or speaking so slowly that other people could have noticed. Or the opposite – being so fidgety or restless that you have been moving around a lot more than usual.</strong></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

PHQ-8 (Kroenke, Strine, Spitzer, Williams, Berry et al., 2008).
### 6.3 Measure of Negative Affect in Response to Dysfunctional Attitude

**Instructions:** The following statements represent attitudes or beliefs which people sometimes hold. Read each statement carefully and then rate your *initial response* regarding how *upset* each statement makes you feel.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Not at all upset</th>
<th>A little upset</th>
<th>Moderately upset</th>
<th>Quite a bit upset</th>
<th>Extremely Upset</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>If I am to be a worthwhile person, I must be truly outstanding in at least one major respect.</em></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td><em>If you don’t have other people to lean on, you are bound to be sad.</em></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td><em>I do not need the approval of other people in order to be happy.</em></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td><em>If you cannot do something well, there is little point in doing it at all.</em></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td><em>If I do not do well all the time, people will not respect me.</em></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td><em>If others dislike you, you cannot be happy.</em></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td><em>People who have good ideas are more worthy than those who do not.</em></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td><em>If I do not do as well as other people, it means I am an inferior human being.</em></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td><em>If I fail partly, it is as bad as being a complete failure.</em></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Items drawn from the DAS-SF (Beevers et al., 2007)
6.4 Combined Strength of Belief in Dysfunctional Attitude Measure, and Measure of Negative Appraisal about Situation Associated with Dysfunctional Attitude.

1) **Instructions**: The following statement represents an attitude or belief which people sometimes hold. Read the statement carefully and decide how much you agree or disagree with it. Your answer should describe the way you think most of the time.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Totally Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>If I am to be a worthwhile person, I must be truly outstanding in at least one major respect.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

DAS items drawn from the DAS-SF (Beegers et al., 2007).

**Instructions**: Now you will be asked to rate how much you agree or disagree with a series of statements based on the following situation:

**Situation**: You fail to be truly outstanding in at least one major respect.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Totally Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>This will have a negative impact on my future</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>This will have harmful or bad consequences for me</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>This will affect many areas of my life</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>This will have a severe impact on my life</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I am prepared to deal with this situation</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I have the resources I need to handle the problems posed by this situation</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I will do the best I can to deal with this situation</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I am able to rise up and meet the demands posed by this situation</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Appraisal items adapted from Kaiser, Major and McCoy (2004).
2) **Instructions**: The following statement represents an attitude or belief which people sometimes hold. Read the statement carefully and decide how much you agree or disagree with it. Your answer should describe the way you think most of the time.

<table>
<thead>
<tr>
<th>If you don’t have other people to lean on, you are bound to be sad.</th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Totally Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

DAS items drawn from the DAS-SF (Beevers et al., 2007).

**Instructions**: Now you will be asked to rate how much you agree or disagree with a series of statements based on the following situation:

**Situation**: You do not have someone to lean on.

<table>
<thead>
<tr>
<th></th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Totally Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>This will have a negative impact on my future</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>This will have harmful or bad consequences for me</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>This will affect many areas of my life</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>This will have a severe impact on my life</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I am prepared to deal with this situation</td>
<td>1</td>
<td>2</td>
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<td>5</td>
</tr>
<tr>
<td>I have the resources I need to handle the problems posed by this situation</td>
<td>1</td>
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<td>4</td>
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</tr>
<tr>
<td>I will do the best I can to deal with this situation</td>
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<td>I am able to rise up and meet the demands posed by this situation</td>
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</tbody>
</table>

Appraisal items adapted from Kaiser, Major and McCoy (2004).
3) **Instructions**: The following statement represents an attitude or belief which people sometimes hold. Read the statement carefully and decide how much you **agree or disagree** with it. Your answer should describe the way you think most of the time.

<table>
<thead>
<tr>
<th>I do not need the approval of other people in order to be happy.</th>
<th>Totally Agree</th>
<th>Agree very much</th>
<th>Agree slightly</th>
<th>Neutral</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

DAS items drawn from the DAS-SF (Beevers et al., 2007).

**Instructions**: Now you will be asked to rate how much you **agree or disagree** with a series of statements based on the following situation:

**Situation**: You do not get the approval of others.

<table>
<thead>
<tr>
<th></th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Totally Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>This will have a negative impact on my future</td>
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</tr>
<tr>
<td>This will affect many areas of my life</td>
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</tr>
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<td>5</td>
</tr>
<tr>
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Appraisal items adapted from Kaiser, Major and McCoy (2004).
4) **Instructions:** The following statement represents an attitude or belief which people sometimes hold. Read the statement carefully and decide how much you agree or disagree with it. Your answer should describe the way you think most of the time.

<table>
<thead>
<tr>
<th>If you cannot do something well, there is little point in doing it at all.</th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Totally Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

DAS items drawn from the DAS-SF (Beevers et al., 2007).

**Instructions:** Now you will be asked to rate how much you agree or disagree with a series of statements based on the following situation:

**Situation:** You do not do something well.

<table>
<thead>
<tr>
<th>Situation</th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Totally Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>This will have a negative impact on my future</td>
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<tr>
<td>This will affect many areas of my life</td>
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<tr>
<td>I will do the best I can to deal with this situation</td>
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Appraisal items adapted from Kaiser, Major and McCoy (2004).
5) **Instructions**: The following statement represents an attitude or belief which people sometimes hold. Read the statement carefully and decide how much you **agree or disagree** with it. Your answer should describe the way you think most of the time.

<table>
<thead>
<tr>
<th>If I do not do well all the time, people will not respect me.</th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Totally Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
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</tbody>
</table>

DAS items drawn from the DAS-SF (Beevers et al., 2007).

**Instructions**: Now you will be asked to rate how much you **agree or disagree** with a series of statements **based on the following situation**:

**Situation**: You fail to do well all of the time.

<table>
<thead>
<tr>
<th>This will have a negative impact on my future</th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Totally Disagree</th>
</tr>
</thead>
<tbody>
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<td>5</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>This will have harmful or bad consequences for me</th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Neutral</th>
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<td>4</td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>This will affect many areas of my life</th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Totally Disagree</th>
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<th>This will have a severe impact on my life</th>
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<td>5</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I am prepared to deal with this situation</th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Totally Disagree</th>
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<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I have the resources I need to handle the problems posed by this situation</th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Totally Disagree</th>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>I will do the best I can to deal with this situation</th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
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</table>

<table>
<thead>
<tr>
<th>I am able to rise up and meet the demands posed by this situation</th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Totally Disagree</th>
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<td></td>
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</table>

Appraisal items adapted from Kaiser, Major and McCoy (2004).
6) **Instructions:** The following statement represents an attitude or belief which people sometimes hold. Read the statement carefully and decide how much you agree or disagree with it. Your answer should describe the way you think most of the time.

<table>
<thead>
<tr>
<th>If others dislike you, you cannot be happy.</th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Totally Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
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<td>4</td>
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</table>

DAS items drawn from the DAS-SF (Beevers et al., 2007).

**Instructions:** Now you will be asked to rate how much you agree or disagree with a series of statements based on the following situation:

**Situation:** Others dislike you.

<table>
<thead>
<tr>
<th></th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Totally Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>This will have a negative impact on my future</td>
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<td>2</td>
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<td>This will have harmful or bad consequences for me</td>
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<td>3</td>
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</tr>
<tr>
<td>This will affect many areas of my life</td>
<td>1</td>
<td>2</td>
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<td>5</td>
</tr>
<tr>
<td>This will have a severe impact on my life</td>
<td>1</td>
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</tr>
<tr>
<td>I am prepared to deal with this situation</td>
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Appraisal items adapted from Kaiser, Major and McCoy (2004).
7) **Instructions:** The following statement represents an attitude or belief which people sometimes hold. Read the statement carefully and decide how much you **agree or disagree** with it. Your answer should describe the way you think most of the time.

<table>
<thead>
<tr>
<th>People who have good ideas are more worthy than those who do not.</th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Totally Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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</tbody>
</table>

DAS items drawn from the DAS-SF (Beevers et al., 2007).

**Instructions:** Now you will be asked to rate how much you **agree or disagree** with a series of statements **based on the following situation:**

**Situation:** You do not do have good ideas.

<table>
<thead>
<tr>
<th></th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Totally Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>This will have a negative impact on my future</td>
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<td>This will affect many areas of my life</td>
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Appraisal items adapted from Kaiser, Major and McCoy (2004).
8) **Instructions:** The following statement represents an attitude or belief which people sometimes hold. Read the statement carefully and decide how much you agree or disagree with it. Your answer should describe the way you think most of the time.

<table>
<thead>
<tr>
<th>If I do not do as well as other people, it means I am an inferior human being.</th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Totally Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
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</table>

DAS items drawn from the DAS-SF (Beevers et al., 2007).

**Instructions:** Now you will be asked to rate how much you agree or disagree with a series of statements based on the following situation:

**Situation:** You do not do as well as other people.

<table>
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<tr>
<th>This will have a negative impact on my future</th>
<th>Totally Agree</th>
<th>Agree</th>
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Appraisal items adapted from Kaiser, Major and McCoy (2004).
9) **Instructions:** The following statement represents an attitude or belief which people sometimes hold. Read the statement carefully and decide how much you agree or disagree with it. Your answer should describe the way you think most of the time.

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<thead>
<tr>
<th>If I fail partly, it is as bad as being a complete failure.</th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Totally Disagree</th>
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DAS items drawn from the DAS-SF (Beevers et al., 2007).

**Instructions:** Now you will be asked to rate how much you agree or disagree with a series of statements based on the following situation:

**Situation:** You fail at something (even partly)

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<th>This will have a negative impact on my future</th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
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<th>This will have harmful or bad consequences for me</th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Totally Disagree</th>
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<th>This will affect many areas of my life</th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Totally Disagree</th>
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<th>This will have a severe impact on my life</th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Totally Disagree</th>
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<tr>
<th>I am prepared to deal with this situation</th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Totally Disagree</th>
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<th>I have the resources I need to handle the problems posed by this situation</th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Totally Disagree</th>
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<th>I will do the best I can to deal with this situation</th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Totally Disagree</th>
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<th>I am able to rise up and meet the demands posed by this situation</th>
<th>Totally Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Totally Disagree</th>
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Appraisal items adapted from Kaiser, Major and McCoy (2004).
Appendix 7: Histogram of Measures

Figure 1: Histogram of PHQ-8 (Measure of Depression)

Figure 2: Histogram of Scores on DAS-SF (Measure of Dysfunctional Attitude)

Figure 3: Histogram of Appraisals (Measure of Negative Appraisal)
Figure 4: Histogram of Affect
Appendix 8: Residual Error Plots for Measures used in the Mediation Models

Figure 1: Residual Error Plots of DYSFUNCTIONAL ATTITUDES and PHQ-8 Scores

Figure 2: Residual Error Plots of DYSFUNCTIONAL ATTITUDES and AFFECT Scores

Figure 3: Residual Error Plots of AFFECT and PHQ-8 Scores
Figure 4: Residual Error Plots of DYSFUNCTIONAL ATTITUDES and APPRAISAL Scores

Figure 5: Residual Error Plots of APPRAISAL and PHQ-8 Scores
Appendix 9: Scatter-plots Demonstrating Relationships between Measures used within the Mediation Models

Figure 1: Scatter-plots demonstrating relationship between DYSFUNCTIONAL ATTITUDES and PHQ-8 Scores

![Figure 1: Scatter-plot demonstrating relationship between DYSFUNCTIONAL ATTITUDES and PHQ-8 Scores](image1)

Figure 2: Scatter-plots demonstrating relationship between DYSFUNCTIONAL ATTITUDES and AFFECT Scores

![Figure 2: Scatter-plot demonstrating relationship between DYSFUNCTIONAL ATTITUDES and AFFECT Scores](image2)
Figure 3: Scatter-plots demonstrating relationship between AFFECT and PHQ-8 Scores

Figure: Scatter-plots demonstrating relationship between DYSFUNCTIONAL ATTITUDES and APPRAISAL Scores

Figure 4: Scatter-plots demonstrating relationship between APPRAISAL and PHQ-8 Scores
Appendix 10: Author guidelines for submission to Journal of Clinical Psychology

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- Permission Request Form

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2. Go to the URL http://mc.manuscriptcentral.com/jclp
3. Register (if you have not done so already).
4. Go to the Author Center and follow the instructions to submit your paper.
5. Please upload the following as separate documents: the title page (with identifying information), the body of your manuscript (containing no identifying information), each table, and each figure.
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Objective(s): Succinctly state the reason, aims or hypotheses of the study.

Method (or Design): Describe the sample (including size, gender and average age), setting, and research design of the study.

Results: Succinctly report the results that pertain to the expressed objective(s).

Conclusions: State the important conclusions and implications of the findings.
In addition, for systematic reviews and meta-analyses the following headings can be used: Context; Objective; Methods (data sources, data extraction); Results; Conclusion. For Clinical reviews: Context; Methods (evidence acquisition); Results (evidence synthesis); Conclusion.

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- Research Articles. Research articles may include quantitative or qualitative investigations, or single-case research. They should contain Introduction, Methods, Results, Discussion, and Conclusion sections conforming to standard scientific reporting style (where appropriate, Results and Discussion may be combined).

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- Commentaries. Occasionally, the editor will invite one or more individuals to write a commentary on a research report.

- Editorials. Unsolicited editorials are also considered for publication.

- Notes From the Field. Notes From the Field offers a forum for brief descriptions of advances in clinical training; innovative treatment methods or community-based initiatives; developments in service delivery; or the presentation of data from research projects which have progressed to a point where preliminary observations should be disseminated (e.g., pilot studies, significant findings in need of replication). Articles submitted for this section should be limited to a maximum of 10 manuscript pages, and contain logical topical subheadings.
• **News and Notes.** This section offers a vehicle for readers to stay abreast of major awards, grants, training initiatives; research projects; and conferences in clinical psychology. Items for this section should be summarized in 200 words or less. The Editors reserve the right to determine which News and Notes submissions are appropriate for inclusion in the journal.

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Chapter Two: Major Research Project Proposal (second submission)

What Mediates the Relationship between Dysfunctional Attitude and Depression? The Role of Hot Cognition.
1. Introduction

Despite the vast amount of research documenting the positive effects of psychotherapies dating back to the 1930s, little remains known about the mechanisms underlying change (Kadzin, 2007; Lambert & Ogles, 2004). Whilst the major models of psychotherapy may propose specific mechanisms of change responsible for the effects of treatment, comparisons of interventions with different hypothesised mechanisms of change often report similar effects in terms of clinical outcomes. For example, much of the research comparing the effectiveness of Interpersonal Psychotherapy (IPT) and Cognitive Behavioural Therapy (CBT) has only found small or non significant differences in treatment outcomes (Cuijpers et al., 2011; Elkin et al., 1989; Jarrett & Rush, 1994; Luty et al., 2007; Power & Freeman, 2012; van Hees, Rotter, Ellermann, Evers, 2013). It is often argued that this finding reflects the contribution of shared non-specific therapeutic factors such as: an emotionally charged confiding therapeutic relationship, a healing setting, a plausible rationale for symptom development and treatment procedure, and a treatment procedure believed by both the patient and therapist to be restorative (Arkowitz, 1992; Frank, 1971, 1972; Parker & Fletcher, 2007). Whilst this may be the case, another mechanism that is implicit within psychotherapy is cognition.

To date, much of the research exploring the relationship between cognition and psychotherapeutic outcomes has looked at cognitive constructs which are based on the Beckian (1967, 1983) cognitive model of depression, such as dysfunctional attitudes. However, this approach has been criticised for failing to acknowledge the distinction between hot and cold cognition, as hot cognitions are considered more central to emotion and therefore change (David & Szentagotai, 2006, Teasdale,
Hot cognition refers to cognitions that are emotionally-laden, such as appraisals, which differ from knowledge-based cognitions which could be considered cold (Ableson, 1963, Lazarus, 1991). Hot cognitions represent the way that cold cognitions are appraised or evaluated in relation to their significance for personal well-being (David & Szentagotai, 2006). This determines the subsequent affective response, which represents the heat (Lazarus, 1991). In this sense, they are hypothesised to mediate the relationship between cold cognition and emotion (David & Szentagotai, 2006). The concept of hot cognition, and its relationship to emotional disorders such as depression, has been explored theoretically and therapeutically yet there is little empirical research in this area (David & Szentagotai, 2006; Ellis, 1962; Padesky & Greenberger, 1995; Safran & Greenberg, 1982). This study will aim to provide some empirical data which will contribute to this gap in research, by testing whether hot cognitions (operationalised as appraisals and affect) mediate the relationship between cold cognition (operationalised as dysfunctional attitudes) and depression.

1.1 Theoretical Basis

Much of the research looking at cognition has been influenced by Beck’s (1967; 1983) cognitive model of depression which has been criticised for failing to acknowledge different levels of meaning that account for the qualitative distinction between hot and cold cognition (Power & Champion, 1986; Teasdale and Barnard, 1993). Clinically, these differences are observed when clients refer to differences between knowing in their ‘head’ and knowing in their ‘hearts’ (Teasdale & Barnard, 1993; Stott, 2007). Whilst Beck (1979) acknowledges that patients report a qualitative difference in their experience of cognition ‘I believe what you are saying
'intellectually, but not emotionally’, he argues that this merely represents confusion in the terms ‘thinking’ and ‘feeling’ (pp. 302). Thus, he suggests that ‘when the patient says he believes or does not believe something emotionally, he is talking about degree of belief’ (Beck, 1979 pp. 302). Therefore, from a Beckian perspective, these differences represent a quantitative variation in a single level of meaning (Teasdale & Barnard, 1993). This is reflected in the way cognitions are approached clinically, with degree of belief considered an indication of an area that a patient needs to work on (Beck, Freeman, Davis et al., 2004). It is also reflected in the way that the model is often operationalised in research, through the use of measures that use degree of belief as an indication of cognitive distortion and therefore vulnerability to depression i.e. the Dysfunctional Attitude Scale (DAS; Weissman & Beck, 1978). The DAS measures the degree to which someone endorses a dysfunctional attitude which is often based on meeting some external contingency such as “If I am to be a worthwhile person, I must be truly outstanding in at least one major respect” (Weissman & Beck, 1978). As this statement reflects one’s subjective understanding of the world and how it works in general, it represents ‘knowledge’ and is therefore considered cold cognition (Lazarus, 1991).

Beck’s account of the differences reported between emotional and intellectual belief as being related to degree of belief has been described as unconvincing on the basis that “many clinicians regard ‘emotional’ belief as qualitatively distinct from ‘intellectual’ belief and functionally more important” (Teasdale & Barnard, 1993 pp.10). It has also been argued that failure to acknowledge this distinction has clear implications for therapy, as clinical change requires change at a higher-order, emotional, level (Teasdale & Barnard, 1993).
Despite these criticisms, it should be acknowledged that Beck’s (1967, 1983) cognitive model has been highly influential and has led to many theoretical and clinical advances. A primary example of this is the development of Cognitive Behavioural Therapy (CBT), which has emerged as an effective treatment of depression (Dobson, 1989; Gloaguen, Cottraux, Cucherat & Blackburn, 1998; APA, 2000; NICE, 2004; Cuijpers, 2008). However, despite the success of CBT, approximately 30-40% of those who receive treatment remain unresponsive (David & Szentagotai, 2006). One potential reason for this is that it fails to specifically target the cognitions that are more central to affect and therefore depression, hot cognitions (David & Szentagotai, 2006).

1.2 Determining the Heat in Cognition

If it is to be accepted that hot cognitions are more fundamental to the experience of depression, then a clear understanding of what constitutes the heat is required. The terms hot and cold cognition have been used as a means of distinguishing between different types of cognitive processes, appraising (hot), and knowing (cold) (Ableson & Rosenberg, 1958 cited in Ellis, David & Lynn, 2010). This theoretical distinction is a fundamental premise of appraisal theory, which differentiates these cognitive processes on the basis of the emotion that they evoke. From this perspective ‘knowledge’ refers to the cognitive representations that people have about the way the world works in general and in a specific context (Lazarus & Smith, 1988; Lazarus, 1991).

‘Appraisal’, on the other hand refers to one’s evaluation of the significance of knowledge in relation to personal well-being (Lazarus & Smith, 1988; Lazarus, 1991). According to this theory, if there are no implications for well-being ‘personal
stakes’, knowledge remains relatively cold or unemotional (Lazarus & Smith, 1988). It is only through the recognition that one has something to gain or lose in relation to personal goals or well-being that emotion is generated and cognition becomes ‘hot’ (Lazarus, 1991). In this context ‘heat’ represents a metaphor for emotional (Lazarus, 2001).

1.3 Rationale

Despite the extensive research generated by psychotherapy, little remains known about the mechanisms through which psychotherapy operates (Kadzin, 2007). A potential mechanism that has generated much research is cognition. However, much of the research in this domain has looked cognitive constructs based on the Beckian (1967, 1983) perspective, which does not make the distinction between hot and cold cognition. Failure to do so, has led to criticism of the approach on the basis that hot cognitions are considered more central to change (David & Szentagotai, 2006, Teasdale & Barnard, 1993). Whilst CBT, which is based on the cognitive model, is considered an effective treatment for depression, a large proportion of those treated remain unresponsive (David & Szentagotai, 2006). One potential reason for this is that it does not actively target hot cognitions which are considered more central to change (David & Szentagotai, 2006). In light of this, it has been argued that the next phase of development within CBT lies in this cognitive construct, which could potentially increase efficacy and effectiveness of the approach (David & Szentagotai, 2006). Given these potential benefits, it seems pertinent to advance our understanding of whether hot cognitions are more central to the experience of depression and whether they mediate the relationship between cold cognition and depression. For the purposes of this research, cold cognition is operationalised as
dysfunctional attitudes and hot cognitions as appraisals. In light of the above, the proposed study will aim to address the following research question.

1.4 Research Question

Are hot cognitions (appraisal & affect) mediators of the association between strength of dysfunctional beliefs and symptoms of depression?

1.5 Hypothesis

Hypothesis 1: The relationship between the strength of belief in dysfunctional attitudes and symptoms of depression will be mediated by hot cognition (appraisal & affect) (Figure 2)

![Hypothesised mediation model](image)

*Figure 2. Hypothesised mediation model*
2. Method

2.1 Participants

To get a wide range of responses, data will be gathered from two main sources. The first will be a community sample of working age adults (18+). These participants will be recruited via social networking sites such as ‘Facebook’ where the adverts will be placed. In order to ensure that individuals with past or current experiences of depression are represented within the research, the second source will be through advertisements on online depression forums such as ‘dealingwithdepression.co.uk’ and ‘talk-depression.org’. Given the design, participants will need to be English literate, have access to the internet, and have a reasonable degree of computer literacy. As the study will be advertised on social networking sites and online depression forums, participants would need to subscribe to one of these sites.

2.2 Sample Size

The aim of this study will be to recruit a sample of 162. According to the simulations conducted by Fritz and Mackinnon (2007) for estimating power to detect effects within mediation analysis, the sample size required to detect small-medium to medium effect size with 80% power when using bootstrapping methods ranges between 78 and 162.
2.3 Design

A cross-sectional, online survey, using opportunistic sampling methods will be utilised. This design was selected in order to maximise the amount of potential respondents in a limited time. The design was also selected as it ensures anonymity which was considered important in terms of ensuring the confidentiality of participants’ responses and encouraging participants to respond openly without demand effects. A disadvantage of this design is that the sample being drawn from is limited to those who are computer literate, with current access to a computer, who are subscribing to one of the sites selected for recruitment. Despite these limitations, this design maximises a pool of potential respondents within the given timeframe which is crucial in terms of feasibility.

2.4 Measuring Cognition

2.4.1 Dysfunctional Attitudes

This study will use the DAS-SF2 as a measure of dysfunctional attitudes purported to confer vulnerability to depression (Beevers, Strong, Meyer, Pilkonis & Miller, 2007). This is a 9-item self-report measure drawn from the 40 item Dysfunctional Attitude Scale (DAS-A: Weissman, 1979), using item-response analysis to provide an efficient and accurate assessment of DAs. The DAS-A is one of the most widely used instruments to measure the prevalence of dysfunctional attitudes Dysfunctional Attitude Scale (DAS; Weissman & Beck, 1978). People are required to rate the degree to which they agree with a series of statements such as “If I am to be a worthwhile person, I must be truly outstanding in at least one major respect” (ranging from 1 totally agree to 4 totally disagree). Higher scores are considered indicative of more distorted thinking which confers vulnerability to
depression (Beck et al., 1991). The DAS-SF2 correlates well with the original DAS (.93) and has demonstrated good reliability, convergent validity and predictive validity in student and patient samples (Beever et al., 2007).

2.4.2 Hot Cognitions (Appraisals)

Before a measure of hot cognition can be determined, an understanding of the appraisal process is required. The most influential model of this approach is associated with Lazarus’ work (Herbert & Cohen, 1996). According to Lazarus and Folkman (1984), appraisals have two components, primary, and secondary.

“Primary appraisal” refers to the evaluation that is made regarding the personal significance of an event for the individual’s wellbeing including self-esteem or a loved one’s health or wellbeing, i.e. what is at stake? (Lazarus & Folkman, 1984, 1987). Secondary appraisals reflect one’s evaluation of how much control they can exert over outcomes. Therefore, if someone believes that there is potential for a damaging outcome but coping resources are adequate, or they have a belief “that somehow things will work out”, the encounter will be appraised as benign or beneficial and a positive emotional reaction is more likely than a negative one” (Lazarus and Smith, 1988 pp. 285). However, if coping resources suggest helplessness or hopelessness in the face of threat, the associated emotional response will ensue i.e. depression, sadness (Lazarus & Smith, 1988). In this sense, coping shapes emotion by influencing the person-environment relationship and how it is appraised (Lazarus, 1993).

Despite the contribution of appraisal theory to understanding of the relationship between cognition and emotion, there is a paucity of validated measures that can be used for this research. This may reflect the conceptual complexity of this
construct brought to the fore by nature of the research processes (Monroe & Kelley, 1995). Therefore, appraisals will be assessed using eight items, originally developed by Kaiser, Major and McCoy (2004), which have been adapted to relate specifically to this study. This method has been used in previous research (Rüsch et al., 2009).

Participants will be asked to answer appraisal questions in response to a situation such as “you fail to be truly outstanding in at least one major respect”. Situations are based on them not meeting the conditions of the dysfunctional attitude i.e. “If I am to be a worthwhile person, I must be truly outstanding in at least one major respect”.

Four items will assess primary appraisal such as “this will have a negative impact on my future” and four will assess secondary appraisal such as “I have the resources I need to handle this situation”. Cronbach’s alphas for primary appraisal reported are .93 and .88 and for secondary appraisals .86, and .78 (Kaiser et al., 2004; Rüsch et al., 2009).

2.4.3 Measuring Affect

The measure of self-reported affect will be a single question which captures a broad range of negative affective experiences ‘if you have this thought, how upset does it make you feel?’ Participants will be asked to rate their responses on a 5-point Likert scale (ranging from 1 not at all to 5 extremely upset). This item was drawn from the positive and negative affect schedule (PANAS; Watson Clark & Tellegen, 1988) which is a widely used, validated, measure of affect.

2.4.4 Measuring Depression

The Patient Health Questionnaire (PHQ-8): The PHQ-8 (appendix 1) will be used as a measure of depression. It consists of eight of the nine criteria used to
determine a diagnosis of depression according to the DSM-IV (American Psychiatric Association, 1994). Items are drawn from the PHQ-9 which has been found to be a valid and reliable measure of depression (Kroenke, Spitzer, and Williams, 2001). The item omitted assesses suicidal or self-injurious thoughts. The decision to use the measure omitting this item was made based on the anonymous design of the study and therefore an inability to follow up any disclosures that might be made, possibly with the hope that they would be followed up. Research indicates that deletion of this question in the general population only has a minor effect on scoring as it is the least frequently endorsed item (Kroenke & Spitzer, 2002; Kroenke et al., 2008). Items require participants to rate how often they have been bothered by a range of problems over the past two weeks, for example, ‘feeling, down, depressed or hopeless’. Ratings are made on a 4 point Likert scale (ranging from 0 not at all to 3 nearly every day).

2.5 Procedure

- The online survey will be developed using a survey software tool. Before going ‘live’ the survey will be screened for errors using a temporary link which allows the opportunity to experience the survey as a respondent would without contributing to the data.

- Once screened for errors, individuals representing the target population will be approached for their perspectives on the acceptability and accessibility of the survey design and content. Volunteers from two online depression forums, dealingwithdeppression.co.uk and talk-depression.org have already been identified and have agreed to contribute. Several members of the social
networking site Facebook have also been identified and have agreed to offer their opinions.

- Once this process is complete and any necessary changes have been made the survey will be uploaded online and the study advertised via the online depression forums and social networking sites referred to above.

- Adverts will include a link to the survey which will enable access for potential participants who are interested in taking part.

- Once the link has been accessed participants will be directed to the information sheet (Appendix 5) and consent form (Appendix 6). Once the participants have read this information they will be given the opportunity to proceed to the survey by ticking a box that indicates their consent.

- Data collection procedures will adhere to the British Psychological Society (BPS) guidance on internet-mediated research (BPS, 2013) as well as the BPS Code of ethics and conduct (2009).

- Following completion of the survey participants will be directed to debriefing information. This will include contact details for the principle researcher and supervisors should participants wish to gain any further information or make a complaint. Participants will also be encouraged to seek professional help, such as contacting their GP, in the unlikely event that they become distressed as a result of taking part in the study. They will also be provided with contact details for sources of social support such as the Samaritans.

2.6 Feasibility Issues

A cross-sectional design using an online survey has been selected in order to maximise feasibility. Social networking sites and online depression forums have
been selected for recruitment of participants as they provide access to a large pool of potential participants which maximises advertising potential. The questionnaire will be piloted before being posted in order to screen for potential issues with the design or content and to ensure usability. The questionnaire will potentially take up to 20 minutes to complete which may deter potential participants from taking part.

2.7 Ethical Considerations

Faculty of Arts and Human Sciences Ethics Committee (FAHS EC) approval will be sought prior to data collection. Data will be gathered anonymously in order to maintain participant confidentiality. Anonymised data will be stored within the Psychology department at the University of Surrey for up to 10 years depending on the requirements resulting from journal publications. This will be in accordance with the Data Protection Act (1998).

Given the personal nature of some of the questions participants were asked to consider, it was acknowledged that some participants may have found aspects of the experience aversive. In address of this, a detailed information sheet stipulating study aims and objectives and the nature of the questions will be provided in order to support potential participants in making an informed decision about whether to take part. Participants will be informed that if they change their mind prior to completing the questionnaire that they are at liberty to stop and that their data will not be used. Participants will be provided with contact details should they wish to complain about any aspect of the research. Contact details for the Samaritans and advice about contacting a GP or other organisations such as MIND in the response to experiences of emotional distress will be provided. This is not due to concerns about emotional distress associated with undertaking the survey but rather to offer some guidance to
participants who may be struggling with a pre-existing emotional issue which they may have gained some insight about as a result of taking part.

2.8 R&D Considerations

NHS ethical approval is not required.

2.9 Proposed Data Analysis

The demographic characteristics of the sample will be summarised. Descriptive statistics for all study variables will be presented. Correlation analysis will be used to look at the relationships between the main study variables. Mediation analysis using bootstrapping will be conducted for the variables which have been hypothesised to have a mediated relationship (Preacher & Hayes, 2004; Hayes, 2009).

2.10 Service User Involvement

Several online depression forums have been approached and have agreed to consult regarding the materials used in this study with specific reference to the accessibility and acceptability. As a community sample is being used, several members of the community will also be consulted. Participants will be informed that they will be able to access a copy of the research once completed as a day visitor at the campus library.

2.11 Dissemination Strategy

Opportunities for dissemination at conferences and special interest groups will be explored upon completion as will opportunities to submit to a peer-reviewed journal such as Journal of Clinical Psychology.
3. References


Chapter Two: Major Research Project Proposal (first submission)

What are the Interpersonal Mechanisms of Change in IPT for Depression?
1. Background

Interpersonal Psychotherapy (IPT) is one of the most empirically validated treatments for depression (Cuijpers et al., 2011). Despite this, there is a paucity of research into the mechanisms of change underlying treatment (Markowitz & Weissman, 2004). Furthermore, despite the interpersonal focus of IPT, little research has been conducted into how the interpersonal dimensions interact with or affect therapeutic outcomes.

According to IPT, communication failures are associated with interpersonal difficulties. IPT uses techniques to identify problematic communication and promote more effective communicative interaction (Weissman, Markowitz & Klerman, 2000). Despite this, there is a lack of research into whether communicative shifts occur in IPT, and if so, how they interact with outcomes such as symptom reduction or shifts in interpersonal relationships.

Numerous studies have demonstrated that perceived adequacy of social support is more significant in relation to depression than the characteristics of support networks (George, Blazer, Hughes, & Fowler, 1989; Steffens, Hays, George, Krishnan & Blazer, 1996). Perceived support availability has been found to be a better predictor of adjustment to stressful life events than actual support received (Wethington & Kessler, 1986). Despite IPT’s aims to address both these factors there is a dearth of research into the relationship between these variables and therapeutic outcomes in IPT.

From an interpersonal perspective, interpersonal problems and depression are interdependent, with shifts in depression being reliant upon concomitant change in
interpersonal problems (Horowitz, Rosenberg & Bartholomew, 1993). IPT actively attempts to identify and modify current interpersonal problems. There is some evidence to suggest that IPT is effective in reducing distress associated with various interpersonal problems domains (Ravitz, Maunder, McBride, 2008). However, the relationship between interpersonal problem distress and therapeutic outcomes in IPT remain unclear.

The clinical effectiveness of IPT for depression when compared with other effective treatments is well established (Elkin et al., 1989). However, a recent review of existing depression measures identified that commonly used depression scales fail to evaluate the full range of depressive symptoms (Cheung & Power, 2012). This led to the development of a depression assessment scale which evaluates symptoms across a range of domains: cognitive, somatic, emotional, and interpersonal. This raises the question whether IPT would be more effective at alleviating interpersonal aspects of depression and whether measures that are sensitive to these factors would be more susceptible to change.

1.1 Research Questions

- What are the interpersonal mechanisms of change in IPT for depression?
- What are the temporal trajectories of change in IPT for depression?
- Do factors associated with communication, interpersonal problem distress, and perceived adequacy of social support, mediate pathways to change in IPT for depression?
1.2 Main Hypotheses

**Hypothesis 1:** Increases in interpersonal communication competence will precede a reduction in interpersonal problems and an increase in perceived adequacy of interpersonal relationships.

From an IPT perspective, maladaptive communication patterns interfere with current relationships (Ravitz, 2004). According to Kiesler (1983), individuals negotiate relationships on the basis of interpersonal transactions. Interpersonal problems are seen as the result of communication failures. Accordingly, it is predicted that improving communication will reduce interpersonal problems and enhance the quality of the supportive interactions.

**Hypothesis 2:** Increases in perceived adequacy of interpersonal relationships will precede reductions in depressive symptoms.

There is some evidence to suggest that negative affective states decrease or suppress perceptions of socially supportive acts from significant others (Vinokur, Schul & Caplan, 1987). Therefore, improvement in depressive symptoms may increase perceptions of social support, thus improving perceived adequacy. However, the association between perceived social support and actual supportive transactions has been found to be much stronger which suggests that perceptions of support are relatively accurate (Vinokur, Schul & Caplan, 1987). Accordingly, it is hypothesised that perceptions of the adequacy of social support will shift in response to changes in interpersonal transactions rather than mood congruent affective states. Therefore increases in supportive interpersonal transactions should increase perceived support.
satisfaction which should reduce depressive symptoms. Further evidence to support this hypothesis comes from Krause, Liang and Yatomi’s (1989) longitudinal panel analysis study which demonstrated that changes in satisfaction with social support tended to precede changes in depressive symptoms but not the reverse.

**Hypothesis 3:** Reductions in distress across the interpersonal problem domains will precede reductions in depressive symptoms.

Evidence to support this hypothesis comes from the study conducted by Ravitz, Maunder, McBride (2008), which looked at the pre and post effects of IPT for depression across a range of interpersonal problem domains. This study demonstrated that for participants identified as full or partial responders, there was a significant reduction in interpersonal problems across the range of the interpersonal circumplex, apart from dominance which approached significance. As this area is under-researched, the evidence underpinning this hypothesis is limited. When researching changes in interpersonal problem distress following combined IPT and pharmacotherapy in patients with comorbid Borderline Personality Disorder (BPD) Bellino, Zizza, Rinaldi & Bogetto (2006) failed to find a significant effect on the following domains: domineering or controlling, nonassertive, overly accommodating, and self-sacrificing. They hypothesised that this may reflect persistent features of BPD that could not be affected within the 6 month treatment period. As comorbid diagnoses are not excluded from this study, there may be some variability in the problem dimensions affected attributable to features associated with other diagnoses. The hypothesised direction of change is based on the rationale put
forward by IPT, that resolving interpersonal problems distress should improve psychopathology (Markowitz & Weissman, 2004).

**Hypothesis 4:** Patients whose symptoms are more reflective of interpersonal domains of depression will show greater improvement at follow-up.

This prediction is based on IPT’s active targeting of factors associated with interpersonal depression. Previous research has demonstrated that patients whose depression was precipitated by interpersonal stressors responded more quickly to Cognitive Behavioural Therapy than patients without antecedent stressors and those with major non-interpersonal stressors (Johnson, Monroe, Simons & Thase, 1994). This suggests that depression associated with interpersonal stressors may be more responsive to treatment, even when not interpersonally focused. Further support for this hypothesis comes from a study by Prusoff, Weissman, Klerman and Rounsaville (1980) which compared the effects of pharmacotherapy, IPT, and their combination, on depression when distinguishing between ‘situational depression’ and endogenous depression. Situational depression referred to depression preceded by a situational stressor. They found that non-endogenous, situational, depression responded well to IPT whereas endogenous depression did not. As interpersonal domains of depression are more likely to be associated with situational stressors it is predicted the greatest improvements will be made within symptoms reflecting these.
2. Method

2.1 Participants

Inclusion and exclusion criteria are listed in Figure 1. Co-morbidities will not be screened. Participants will be recruited from Sussex Partnership National Health Service (NHS) Foundation Trust and via private practitioners delivering IPT. Therapists will be required to have practitioner status. We will aim to include 15 participants. As we are using a case-series design, power analyses do not apply. The sample size was determined on the basis of previous research and feasibility. Sample sizes in other single intervention studies identified using case series designs ranged between 4 and 59 and studies that indicated dropout rates reported ranges between 0-23% (Arcelus et al., 2009; Chadwick, Williams & Mackenzie, 2003; Watkins et al., 2007; Wells & Papageorgiou, 2001). A sample size of 15 was considered suitable for hypotheses generation as it allows scope for multiple change pathways to emerge. In order to try and ensure that we retain 15 participants we will aim to recruit at least 20 using convenience sampling methods. This allows for a 25% attrition rate. The National Audit of Psychological Therapies for Anxiety and depression (NAPT; Royal College of Psychiatrists, 2011) reported attrition rates within services between 0-50%, with a median of 19 and an average of 25% within the audit period. Given that IPT has demonstrated lower attrition rates than other treatments, this is considered sufficient (Elkin et al., 1989; Wilson, Wilfley, Agran & Bryson, 2010).

IPT interventions focus on four focal areas: grief/loss, role transitions, interpersonal sensitivities, and interpersonal disputes. Patients receiving treatment for all focal areas apart from interpersonal sensitivities will be included. Sensitivities differ from the other areas as they typically reflect a pervasive attachment style rather
than an acute interpersonal or situational stressor (Scott, 2006). Sensitivities will be screened out at referral or assessment. As this area tends to be used as a default in the relatively infrequent absence of other areas, it is not anticipated that this will be problematic (Markowitz & Weissman, 2004).

<table>
<thead>
<tr>
<th>Inclusion</th>
<th>Exclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult Outpatients (&gt;18)</td>
<td>Non-English speaking</td>
</tr>
<tr>
<td>Primary diagnosis of depression</td>
<td>High risk populations (suicidal / forensic)</td>
</tr>
<tr>
<td>English speaking</td>
<td>Active substance misuse</td>
</tr>
<tr>
<td>PHQ-9 score &gt; 10 (moderate range)</td>
<td>Current psychotic symptoms</td>
</tr>
<tr>
<td></td>
<td>Cognitive impairments affecting ability</td>
</tr>
<tr>
<td></td>
<td>to participate in research</td>
</tr>
<tr>
<td></td>
<td>Interpersonal sensitivities</td>
</tr>
</tbody>
</table>

*Figure 1. Inclusion and Exclusion Criteria*

**2.2 Design**

A within-subject A, B, design will be used to measure how study variables change over time and in relation to each other. A battery of validated measures will be used to gather data. Measures will be counterbalanced to prevent spurious findings associated with location in the administration of the battery. As standardised measures are used, items within measures will not be counterbalanced. We will aim to take baseline measures at two time points prior to treatment, the first being two weeks prior and the second prior to the first IPT session. Potential participants would need to be identified at point of referral. Ideally, with this design multiple baseline measures would be taken until stabilisation. However, clinically this is not practical and there are potential ethical considerations regarding withholding treatment which
make this less favourable. We will aim for evenly distributed data points across the phases to avoid potential distortions. If sessions are missed it will not be possible to have even temporal distribution. However, patients will be asked to complete the measures in the following session to maintain even distribution of data points for stages of therapy. Fortnightly data points were selected to reduce the demands on the therapist and to avoid overloading participants. Given IPT’s empirical history and its use within Improving Access to Psychological Therapies (IAPT) services which require patients to complete a weekly battery of measures, it is predicted that the requirements of this study will be well tolerated by patients and therapists. We will aim to collect data over two data points in the follow-up period. The length of follow-up is restricted to prevent loss to follow-up. However, this may be extended if viable. Data for participants receiving maintenance treatment (IPT-M) will be excluded. However, as this tends to be monthly or less, it is not anticipated that this will interfere with our study. Recruiting multiple participants per therapist is considered more feasible as it would involve less therapists. Therefore, between-therapist effects will be considered. This has the additional benefit of allowing for analyses of therapist variability.

2.3 Measures

The following battery of validated self-report measures will be administered.

**Patient Health Questionnaire** (PHQ-9; Kroenke, Spitzer & Williams, 2001). This is a 9 item self-report measure of depression severity widely used in clinical practice (Appendix 1.). Internal reliability (.84 - .89) and test-retest reliability (.84) for this measure is good and validity has been established using a range of sources (Kroenke et al., 2001).
**The Interpersonal Communication Competence Scale (ICC30; Rubin & Martin, 1994).** This is a 30 item self-report measure that taps into 10 dimensions of competence: self-disclosure, empathy, social relaxation, assertiveness, interaction management, altercentrism, expressiveness, supportiveness, immediacy and environmental control (Appendix 2). Items are scored on a 5-point Likert based on how well each statement reflects the person’s style of communicating (ranging from 1 *Almost never* to 5 *Almost always*). Principal component factor analyses indicated that 25 of the 30 items load on one factor suggesting this measures a single construct. This scale demonstrates good internal reliability (.86) and has greater content validity than other communication scales (Rubin & Martin, 1994).

**Significant Others Scale: short version (SOS: Power, Champion & Aris, 1988).** This is a measure of the perceived function and form of social support for a range of significant relationships (Appendix 3). Functions of support are separated broadly into emotional and practical support. This measure can be used to calculate discrepancies between the person’s perception of actual and ideal support for up to six significant relationships. Ratings are made on a 7-point Likert scale (ranging from *Never* to *Always*). This scale has been shown to discriminate between depressed and non-depressed subjects, with depressed subjects demonstrating significantly higher discrepancies between actual and ideal support (Power et al., 1988). This scale demonstrates good reliability (.73 -.83) and validity (.74) (Power et al., 1988).

**The Inventory of Interpersonal Problems: short version (IIP-32; Barkham, Hardy & Startup, 1996).** This is a 32 item self-report instrument that identifies difficulties in interpersonal relationships that range across 8 domains of interpersonal functioning (Appendix 4). Responses are made on a 5-point Likert scale (ranging from 0- *Not at*
all to 4 extremely). Internal consistency (.86) and reliability (.70) for this measure are good. Re-test reliabilities for the interpersonal domains range from .56 - .81 (Barkham et al., 1996).

The Multidimensional Depression Assessment Scale (Cheung & Power, 2012). This is a 52 item scale that evaluates participants’ behaviours and feelings in four domains: emotional, cognitive, somatic and interpersonal (Appendix 5). Items are scored on a 5-point Likert scale (ranging from 1 not at all to 5 all the time). Internal consistency for the full scale (.87) and subscales (.83 - .89) is good. Convergent validity for the full scale was .77 and the subscales ranged from .59 - .73.

2.4 Procedure

Services will be consulted and a feasible method for the identification of potential participants and distribution of information packs containing consent forms (Appendices 6 & 7) will be agreed, in line with organisational procedures. Once screened and consent obtained, patients will complete the initial battery of assessments 2 weeks prior to treatment and then again every subsequent 2 weeks. Packs including the measures will be provided to services. Therapists will be asked to monitor the distribution of measures. To facilitate this, packs will include a checklist and will be organised into sessions indicating whether measures should be provided or not. Where feasible, administrative staff may be asked to support therapists with distribution. Therapists will be consulted regarding this process taking into account organisational differences and therapist preferences. Participants will be asked to arrive 30 minutes prior to their appointment to prevent participation from interfering with routine care. As we are interested in routine clinical practice
therapists will not be asked to adhere to a manualised treatment programme. However, as IPT is protocol-led some degree of adherence is expected.

2.5 Ethical Considerations

As the target population includes vulnerable adults, there are several potential ethical considerations. Participants may feel obliged to take part. In address of this, a detailed information sheet stipulating study aims and objectives and the demands that will be made of patients will be provided. As the study requirements increase the demands of patients, it will be made explicit that they may withdraw at any point and that their data can be withdrawn up until university submission. Issues around consent will be carefully considered and therapists will be asked to identify potential issues relating to capacity. Participants will be provided with contact details should they wish to complain about any aspect of the research. It will be made explicit that clinical responsibility remains with the therapist and the service in charge of their care. This is particularly relevant given that one of the items on the PHQ-9 screens for risk. NHS ethics will be required for this study.

2.6 Research and Development (R&D)

This study will require NHS R&D approval. We have been liaising with the Sussex Partnership Trust Lead for Psychotherapeutic Counselling and Supervision & Training and we have an agreement in principle from the co-themed lead for mood and anxiety research in Sussex.

2.7 Service User Involvement

The University of Surrey’s co-ordinator of service user and carer involvement has been consulted regarding materials used in this study. As the target population,
service users will contribute directly to the research. Findings of the research will be made available to service users through dissemination.

2.8 Proposed Data Analysis

The primary method of analysis will be visual inspection of graphical data, as this will enable individual trajectories of change to be plotted at various stages of therapy. Observations will be supported by descriptive statistics. Individual interpersonal and symptom change profiles will be examined. Level, slopes, and trend, will be assessed and comparisons of means across phases will be made. If appropriate, inferential statistics will be conducted and autocorrelations applied to account for the repeated measures design.

2.9 Feasibility Issues

A major feasibility issue would be failure to obtain R&D approval from Sussex Partnership NHS Trust. If this is the case, we will approach Surrey and Borders Partnership NHS Trust. We are also approaching several private practitioners to ensure that we have several options for recruiting our pool of participants. One private practitioner has agreed in principle. In addition to this there is the demand on services and therapists’ time. Every effort will be made to minimise these demands and facilitate the process in accordance with organisational procedures and therapists’ preferences. Services involved will be invited to appoint a field supervisor to appear as a co-author on publications stemming from this research. Therapists involved will also be given this opportunity.

2.10 Dissemination Strategy

The literature review and research proposal will be presented at the IPT South special interest group (SIG) in November, 2012. Other opportunities for
dissemination will be explored including submission to a peer-reviewed journal once complete.

2.11 Timeline

- MRP course approval: September, 2012.
- Data collection complete: August, 2013.
- Data analysis started: August, 2013.
- Data analysis complete: October, 2013.
- Complete draft submitted to supervisor: December, 2013.
3. References


Chapter Three: The Literature Review Assignment

What can IPT Outcome Research tell us about the Mechanisms Underlying IPT’s Effectiveness in Treating Adults for Depression?

Systematic Literature Review
1. Abstract

The purpose of this review was to identify mechanisms of change within Interpersonal Psychotherapy (IPT) for depression by systematically evaluating the existing research in relation to the theories underpinning the approach and the features which are distinctive to IPT. In particular, the review draws upon Social Theory, Interpersonal Theory, Attachment Theory and Communication Theory as a means of informing our understanding of the mechanisms underlying change in IPT. The distinctive features of IPT such as its interpersonal focus, its use of the medical model, its therapeutic orientation, and its emphasis on communication, are also used as a means of interpreting research and furthering our understanding.

**Method:** Systematic database searches were conducted in order to identify relevant articles. Of the 58 articles that met preliminary inclusion criteria, 19 were included in the final review.

**Findings:** There were a range of factors found to be associated with change in IPT which are categorised as therapeutic factors, therapist factors, patient factors, social factors, and interpersonal factors.

**Conclusions:** Further research is needed in order to develop our understanding of the mechanisms underlying change in IPT. Greater attention should be given to the approach’s theoretical underpinnings when analysing research as this can provide a useful basis for further developing this understanding.
2. Introduction

A great deal of research has been undertaken on the effectiveness of Interpersonal Psychotherapy (IPT), yet comparatively little has been aimed at looking at the mechanisms underlying its effect (Markowitz & Weissman, 2004). The purpose of this review is to look at how change is accounted for within IPT research in relation to its theoretical framework. A recent review by Champion (2012) provides a compelling argument for the need to pay greater attention to IPT’s theoretical basis when forming our understanding of the mechanisms underlying treatment outcome and in developing insights about those who might benefit from treatment. Champion’s review looks specifically at the role of social theory and in particular research on life events and social support. This review takes a broader perspective and aims to look at how change associated with IPT in different contexts can provide information on the mechanisms underlying its effectiveness, using the range of theories identified as influential in the development of IPT. These include interpersonal theory, attachment theory, social theory, and communication theory. It also attempts to analyse the research in relation to the defining features of IPT such as therapeutic factors, its interpersonal focus, and its use of the medical model.

The review is limited to IPT for depression in adult populations. This was decided on the basis that there is strong evidence to suggest that IPT is an effective treatment for adult depression (Elkin et al., 1989; Luty et al., 2007). The articles included in the review have been categorised in relation to the following categories: therapeutic factors, therapist factors, patient factors, social factors, and interpersonal effectiveness. Therapeutic factors' looks at how some of the key features of IPT such as arousal of affect, therapeutic alliance, and interpersonal focus, promote change.
'Therapist factors' looks at how accurate the therapist is in targeting interpersonal difficulties. 'Patient factors' look at the role of personality dimensions, attachment style, and patient beliefs, in relation to therapeutic change within IPT. 'Social factors' draws upon social theory by considering how factors such as availability of social support and life events affect response to IPT. 'Interpersonal factors' looks more at the role of interpersonal skills. However, it should be noted that there is some degree of overlap between the latter two categories.

3. Theoretical Underpinnings of IPT

Interpersonal Psychotherapy was developed by Klerman, Weissman and colleagues as a treatment for depression (Klerman, Weissman, Rounsaville & Chevron, 1984). It is based upon interpersonal theory and the empirical links demonstrated between depression and psychosocial contexts. IPT is based on the premise that there is interplay between psychosocial environment and mood. Thus, when difficult life events occur, mood declines, which can result in depression, or when depressed one’s ability to handle their social role can be compromised, which may result in negative events (Markowitz & Swartz, 2006).

3.1 Interpersonal Theory

IPT acknowledges that major depression occurs within an interpersonal context, which is irrespective of aetiology. Its development was largely influenced by the interpersonal school of psychoanalysis and the work of Harry Stack Sullivan (1953) and Adolf Meyer (1957). IPT reflects Meyer’s psychobiological approach which emphasises the dynamic interplay between biological, psychological, and social factors, in the development of psychopathology. Sullivan (1953) also
acknowledged the importance of psychosocial context but highlighted the primary role of human need for satisfaction and security in relationships. According to Sullivan, psychopathology occurs when these primary needs are not met and personality development is hindered. In particular, he emphasised the importance of early childhood experiences which he identified as crucial with regards to future interpersonal functioning. In particular, Sullivan emphasised the role of significant others in shaping self-esteem, by suggesting that one becomes the reflected appraisals of significant others. He also recognised the influence of early life interactions with others on future relationships and coined the phrase ‘parataxic distortions’ to describe the tendency to distort perceptions of others on the basis of past relationship patterns or experiences. Accordingly, he stressed the importance of focusing therapeutically on the interpersonal context rather than the individual.

Whilst he considered personality factors relevant, this was only within the interpersonal context. Sullivan viewed the therapeutic relationship as being distinct from other interpersonal relationships. He encouraged therapists to adopt the expert role and to act as ‘participant observers’ whose role was to increase the clients’ awareness of observable dysfunctional interpersonal patterns. He argued that this would increase confidence in treatment and improve outcome.

3.2 Attachment Theory

IPT is rooted in attachment theory which emphasises the human drive for affectional bonds (Bowlby, 1978). According to Bowlby (1973) people develop attachment-systems based on their interactions with childhood caregivers who assume the position of attachment figures. Nearly all children are considered to be born with the potential for a normal attachment system, which motivates security and
proximity-seeking in times of need (Mikulincer & Shaver, 2007). However, if the caregiver is unreliable or unresponsive, and the child’s need for security and proximity is not met, this may have a negative effect on attachment-system functioning. Repeated experiences of not having needs met can result in the child losing confidence in proximity-seeking strategies. As a result, they may go on to develop alternative, less adaptive, emotion-regulation strategies (Mikulincer & Shaver, 2007). Strategies can include frantic disproportionate attempts to increase proximity to the attachment figure, or suppression of needs through deactivation of the attachment system which serves to reduce distress associated with attachment figure unavailability (Mikulincer & Shaver, 2007).

Early attachment-related interactions lead to the development of mental representations of the self and relationships with others known as ‘working models’. These working models guide affect regulation in future relationships and can have a biasing effect on memories and interpretations of future interpersonal interactions (Mikulincer & Shaver, 2007). Attachment styles develop on the basis of one’s history of attachment experiences. The style that an individual develops will reflect the most salient and accessible working models available to them and the typical functioning of their attachment system (Mikulincer & Shaver, 2007). ‘Secure’ attachment styles are associated with positive working models of proximity-seeking, ‘avoidant’ attachment styles are associated with needs suppression and the deactivation of the attachment system, and ‘anxious’ attachments styles are associated with excessive proximity-seeking attempts. Both anxious and avoidant attachment styles are considered insecure attachment styles. Insecure attachment styles develop as a defence in response to the distress associated with unmet
childhood attachment needs. Secure attachment styles are generally associated with better interpersonal functioning. Insecure attachment styles, whilst functional, can have a negative impact on future relationships as they rarely result in the desired effect. Attachment systems can be activated at any age in response to events which are perceived as threatening, whether they are attachment-related (threats to relationships) or attachment-unrelated (Mikulincer & Shaver, 2007). IPT recognises the importance of acknowledging unmet attachment needs in the development of interpersonal problems and psychological distress.

3.3 Communication theory

Kiesler (1983) adds to our understanding of attachment relationships by looking at the role of interpersonal communications in determining how individuals adjust to each other when interacting. According to Kiesler (1983), interpersonal difficulties occur as a result of communication failures. Interpersonal communications are influenced by expectations and beliefs about relationships which are based on attachment-based “working models” (Scott & Robertson, 2003). Parataxic distortions which are based on inaccurate working models have a strong influence over the way these communications occur (Scott & Robertson, 2003).

Kiesler (1983) argues that, the way that individuals communicate affects the reciprocations that they elicit from others. Individuals negotiate relationships on the basis of affiliative and dominant dimensions of communication. Dominant dimensions range from dominance to submissiveness and affiliative dimensions range from high to low in affiliation. When individuals interact their behaviour tends to be complimentary. Communication which is high in affiliation tends to evoke responses from others which are also high in affiliation, and communication which is
high in dominance tends to evoke submissive responses. In relationships individuals are constantly negotiating how hostile or friendly they will be through dimensions of affiliation, and how in control they will be through dimensions of dominance (van Denburg & Kiesler, 2002). The principle of complementarity is considered a key process in the way in which people influence others into confirming their self-representations. The implications for therapy are that in order to provide a corrective experience, therapists’ need to attend to communication so as to avoid engaging in maladaptive reinforcing complementary responses (van Denburg & Kiesler, 2002).

### 3.4 Social Theory

IPT recognises the importance of social contexts in the development of psychiatric symptoms. It is largely influenced by social theory which views psychological distress as a response to adverse life events in the absence of adequate social relationships. Henderson (1977) argues that humans strive for positive affective interactions with others. The term support is used to define this interaction under stressful conditions. Lack of support under these conditions results in mental health deterioration (Henderson, 1977). However, the availability of support alone is not adequate, as the quality and its perceived availability can influence its buffering effects (Henderson, 1981).
4. Distinctive Features of IPT

4.1 Interpersonal Focus

Whilst IPT acknowledges the profound effects of early attachment relationships and the relevance of personality characteristics within interpersonal contexts, interventions made in the present are considered sufficient to improve interpersonal environment and alleviate depression (Markowitz & Swartz, 2006). Interpersonal formulations are used to hypothesise about why the patient has developed interpersonal difficulties and to identify social support available. Interpersonal Psychotherapy links the onset of depression to one of four interpersonal problem areas. These include grief (relating to unresolved bereavement), role disputes, role transition (major life events including conceptual losses) and interpersonal sensitivities. This is done without reference to causality, the purpose being to place the depression within an interpersonal context which can be evaded (Markowitz & Swartz, 2006).

4.2 Therapeutic Factors

IPT is based on the “common factors” of psychotherapy. Therapeutic factors (Frank, 1971) identified as relevant to IPT include: a therapeutic stance which communicates understanding and empathically engages the patient, conditions which arouse affect, a clear treatment rationale and rituals and experiences of success (Markowitz & Weissman, 2004). In IPT, affect that the patient displays during the conduct of therapy is encouraged as it can help patients learn about their emotional experiences and how to manage affect within interpersonal contexts outside of the therapeutic relationship.
Within IPT, the therapeutic relationship is conceptualised in reality and the ‘here and now’. The therapeutic relationship can be used as a source of learning for the patient about the way they interact interpersonally, but the patient-therapist relationship is not the primary focus of treatment (Weissman, Markowitz & Klerman, 2000). IPT acknowledges the relevance of intra-psychic processes but does not address them explicitly in therapy or seek to facilitate transference.

### 4.3 Medical Model

IPT draws on Sullivan’s concept of the therapist as expert. It adopts a medical model which defines depression as a treatable medical illness, independent of personality. Depression is explained to the patient in terms of a stress-diathesis model (Markowitz & Swartz, 2006). This conceptualises depression as having a biological underpinning which can be triggered by social and environmental factors. One of the processes used in IPT is to encourage the patient to adopt a “Sick Role” (Parsons, 1951). This serves to excuse the patient from self-blame and give them the control to make the changes necessary to alleviate depression (Markowitz & Swartz, 2006).

### 4.4 Communication

In IPT communication failures are considered central to the development of interpersonal difficulties. Techniques such as communication analysis are used to identify examples of dysfunctional communication and to guide the patient towards communicating more effectively (Weissman, Markowitz & Klerman, 2000).
5. Method

5.1 Search Strategy

Databases searched were PsychINFO (04/02/2011), PsychARTICLES (04/02/2011), Psychology and the Behavioural Sciences Collection (04/02/2011), Medline (09/02/2012) and Web of Knowledge (09/02/2012). The following search terms included “Interpersonal Psychotherapy” OR “Interpersonal therapy” AND Depression AND (Process OR Mechanism(s) OR Moderator(s) OR Predictor(s) OR Specificity) OR (Response(s) OR Course(s) OR Reaction(s) OR Progress OR Change(s)). Search terms were identified by scanning key articles for relevant terms. Additional references were detected by screening bibliographies of relevant articles and previous reviews.

5.2 Preliminary Inclusion / Exclusion Criteria:

A summary of the inclusion/exclusion process can be found in figure 1. The journal articles included were those reporting quantitative and qualitative primary research. Dissertations, commentaries, reviews, meta-analyses, books and book chapters were not included. Studies looking at IPT within depressed adult out-patient populations (>18) were selected. Participants were required to meet the criteria for a depressive disorder which was the focus of their treatment. To meet inclusion criteria at least one treatment condition had to be individual IPT. Full copy articles were obtained for studies looking at adapted versions of IPT prior to exclusion. Articles considered as varying significantly from standard IPT protocol were excluded.

Studies of interest were those that identified mechanisms of change within IPT treatment. On this basis, studies focusing solely on process which were unrelated
to outcome were excluded. Studies which focussed on alliance as an outcome were included due to the established alliance-outcome association. Comparative effectiveness studies were excluded. Studies with concurrent pharmacotherapy were included on the basis that they are compatible with IPT and its medical approach (Markowitz & Swartz, 2006). However, studies looking primarily at the effects of pharmacotherapy were excluded. Studies looking primarily at neurological and physiological effects were considered relevant but excluded on the basis that they were beyond the scope of this review.

IPT is an effective treatment for depression across a range of diverse cultures (Weissman, Markowitz, & Klerman, 2007). In view of this, there were no exclusions on the basis of culture or ethnicity. Preliminary exclusion criteria included studies looking at psychotic populations, active substance misuse, and high risk populations (high suicide risk, forensic populations). Co-morbid personality disorders were included but studies focusing primarily on personality disorder populations were excluded.

In total 58 articles meeting preliminary inclusion criteria were identified. Once preliminary inclusion and exclusion criteria were applied articles were categorised as ‘characteristics of the depression’, ‘patient factors’, ‘therapist factors’, and ‘process factors’. Articles which inform our understanding of how change is accounted for in relation to IPT theory were selected for review. Articles looking at the effects of characteristics of the depression or patient demographics were excluded, with the exception of marital status as this was considered relevant. Articles looking at the effects of sleep on therapeutic change were considered too broad for the scope of this review and were excluded. Articles looking at effects of
pre-treatment anxiety or the role of sudden gains were also excluded for this reason. Articles which described IPT process but did not relate this to some aspect of change or outcome were excluded, with the exception of alliance for the reasons detailed previously. Articles looking at therapist adherence or specificity of treatment versus common factors were considered relevant but were excluded on the basis that this area is well researched and considered beyond the scope of this review. Articles regarding patient preference for treatment, motivation, degree to which patient is perceived as difficult, or congruence between therapeutic modality and client beliefs were also excluded. Studies which grouped psychotherapy treatments together were excluded as this prevented interpretations about the specific effects of IPT to be made. Studies including IPT solely as a comparison group were also excluded unless relevant to the research question.
Figure 1. Summary of the inclusion/exclusion process
5.3 Data abstraction

The data extracted from the articles and presented is only the data which is relevant to the current review. Therefore, findings from comparison groups have not been included unless necessary.

5.4 Methodological quality

As the review has incorporated studies using a range of methodologies, studies are considered within the limits of the approaches used. Studies which have used randomised samples are indicated in the tables in Appendix 1, as are studies drawing samples from multi-site research programs which have robust designs. Considerations regarding generalisability within these samples and sample sizes can also be found in the tables. Where multi-site research programmes are indicated comments regarding generalisability are only listed once and can be applied to all studies drawing from these samples, unless otherwise indicated. Studies using more than one measure of the construct they are researching or multiple methods are considered stronger. Studies using clinical samples are indicated, as are studies which only include completer samples. In this case generalisability to non-clinical samples should be considered cautiously. When used, comparison groups are also indicated and are considered a strength. Studies applying strict exclusion criteria and studies relying on manualised treatment protocols are limited in terms of the extent to which they reflect treatment in "real world settings".
6. Findings

6.1 Findings Relating to Therapeutic Factors

6.1.1 Arousal of Affect

Coombs, Coleman, and Jones (2002) conducted a study exploring in-session patient emotion and therapist stance towards affect across Cognitive Behavioural Therapy (CBT) and IPT treatment conditions. They analysed transcripts of treatment sessions using an item-rating instrument, the Psychotherapy Process Q-Sort (PQS; Jones, 2000). Factor analysis of PQS ratings revealed distinct differences between treatments in relation to stance towards emotion. As might be expected, IPT was associated with a therapist stance towards emotion which encourages emotional expression and exploration, and CBT with a stance which was more directive and educative. The study looked at the degree of painful affect within treatment groups using a painful affect measure which comprised of a cluster of 3 PQS items. Despite the distinct differences found in therapeutic stance, there were no differences in the presence of painful affect within treatments. This appears to indicate that expression of affect is more reflective of patient factors than therapeutic stance. One of the key findings was that the therapeutic stance associated with IPT, which was more encouraging of emotional expression and exploration, was associated with lower levels of depression at outcome after controlling for pre-treatment depression. Higher levels of painful affect were associated with increased depression at outcome across treatments. This emphasises the importance of titrating emotion in therapy so as to ensure that enough arousal is achieved to facilitate change, without overwhelming the patient, which is consistent with the IPT framework.
6.1.2 Alliance

Krupnick et al., (1996) looked at the relationship between therapeutic alliance and outcome of treatment. They compared CBT, IPT, and Pharmacotherapy. The strength of the therapeutic alliance was determined by scoring videotaped sessions using the Vanderbilt Therapeutic Alliance Scale (VTAS: Hartley & Strupp, 1983). They found that therapeutic alliance ratings were negatively correlated with symptoms of depression at outcome across treatments. This suggests that the established outcome-alliance link can be applied to IPT. Constantino et al., (2010) looked at factors which strengthened the alliance. Their study looked at the association between patients’ interpersonal impacts as perceived by their therapists and therapeutic alliance. Their findings suggest that patients’ affiliative impacts are positively associated with alliance quality. As the authors suggest this finding might simply reflect that it is easier to form alliances with patients with friendly, non-oppositional dispositions. However, the authors point out that those scoring high on affiliation may outwardly agree with the therapist, despite dissatisfaction with treatment. Therefore they suggest that therapists should consider patients’ affiliative styles as this may provide important information about clients in relation to their ability to form alliances, which will enable therapists to adjust accordingly.

However, one could also speculate that dispositional differences might reflect differences in attachment style which impact on alliance formation. This would be consistent with idea that dispositional communication is reflective of underlying working models (Scott & Robertson, 2003). According to Horowitz, Dryer, and Krasnoperova’s (1997) model, individuals with negative mental representations of others are likely to develop fearful or dismissing attachment styles which should
have an inverse relationship with affiliative dispositions. As these attachment styles are associated with avoidance of intimacy, it is possible that this interfered with their ability to form effective working alliances.

A non-hypothesised finding was that patients using concurrent psychotropic medication reported better alliances at session three. One explanation offered was that medication may have offered faster relief from depressive symptoms which may have facilitated alliance. Another possibility which could be considered is whether there is an association between clients’ willingness to take medication and willingness to adopt the sick role. As this is an integral part of the therapeutic strategies used in IPT, willingness to adhere to the medical model may have some impact on alliance. However, under the authors’ advice these findings should be interpreted cautiously as the methods used increased the chance of the medication-alliance association occurring by chance.

Zuroff, Kelly, Leybman, Blatt & Wampold (2010) looked at the relationship between therapeutic outcome and subjective measures of Rogerian conditions of positive regard, empathy, and genuineness, as rated by the patient. They looked at between-therapist and within-therapist differences. As would be expected when analysing between-therapist differences, they found that patients whose therapists were rated higher on Rogerian conditions across the patients in their caseload, experienced faster reductions in overall maladjustment and depressive vulnerability. Weaker effects were found for within-therapist differences. These findings suggest that outcome can be predicted on the basis of therapists’ differences in their ability to foster Rogerian conditions. The predictive nature of therapists’ ability to foster these conditions within their caseloads is also highlighted as a result of this study;
however, this finding appears less robust. One of the possibilities offered by the authors for the weaker effect in the within-treatment condition is that this may reflect patients’ response biases when using rating scales.

Crits-Christoph et al., (1999) conducted a study which explored the predictors of the frequency and completeness of interpersonal narratives in psychotherapy. Consistent differences were found between IPT and Cognitive Therapy (CT) sessions with IPT containing significantly more narratives and a lower proportion of therapist words per narrative. This does not seem that surprising and may simply reflect differences between the interpersonal focus of IPT and the directive stance adopted in CT. Across treatments, alliance was positively associated with number of patient words per narrative. However, there was also a trend for the alliance to interact with treatment modality in predicting the number of relationship episodes (patient descriptions of interactions between themselves and another person) within a session, with a positive association in IPT and negative in CT. This may indicate that in IPT a positive alliance may help facilitate discussions about interpersonal problems. An additional finding across treatment was that patients with more involved interpersonal styles elicited more therapist words per narrative. Whilst this study provides some useful information about differences in the nature of narratives across treatments, it only looks at narratives in relation to one potential aspect of change, the alliance. As the authors suggest, it may be useful to expand this research to identify how these elements influence factors such as interpersonal accuracy. It may also be useful to expand this to look at other outcome-related variables.
6.1.3 Interpersonal Focus

Crowe and Luty (2005b) describe the impact of interpersonal focus on treatment outcome for a case study which was analysed using discourse analysis. Their interpretation was that one of the components which facilitated change was the interpersonal focus of the therapy, as the client’s attributions about the cause of the depression shifted from attributions about faulty individual functioning to those which were considered within the context in which the depression emerged. They suggest that by exploring this context the patient was able to shift from a subject position of passivity and avoidance of conflict to a more active subject position.

Crowe and Luty (2005c) used a case study to explore the process of IPT in the recovery of depression using discourse analysis. They found that using this approach they were able to identify how the development of a more meaningful subject position in relation to others, enabled this patient to recover from depression. The interpersonal nature of the approach was integral to this process, as the emphasis on self in relation to others shifted the self-referentiality and introspection that was promoting a sense of detachment from the patient’s husband. IPT’s focus on action rather than reflection supported this. The therapist techniques were identified as facilitating this shift were: information seeking, exploring beliefs / values / assumptions, exploring communication patterns, exploring affective responses, and exploring alternative subject positions.
6.2 Findings Relating to Therapist Factors

6.2.1 Interpersonal Accuracy

Crits-Christoph, Gibbons, Temes, Elkin, and Gallop (2010) conducted a study which examined the association between interpersonal accuracy of therapist interventions and treatment outcome in CT and IPT. Interpersonal accuracy reflects the degree to which therapists’ learning statements ‘hit the mark’ in terms of the patient’s interpersonal themes as determined by an independent rater. Interpersonal patterns were assessed using the Quantative Assessment of Interpersonal Themes (QUAINT: Crits-Christoph, Demorest, Muenz & Baranackie, 1994) method. They found that higher accuracy scores were related to poorer outcomes in CT and better outcomes in IPT. This suggests that mechanisms of change in IPT differ to those in CT and that interpersonal accuracy may be one of the components which IPT relies upon. The authors acknowledge several limitations to their findings which suggest that findings should be interpreted cautiously. Firstly, the direction of the interaction between interpersonal accuracy and treatment type was not hypothesised. This is relevant as only some of the accuracy measures predicted outcome and corrections for multiple analyses were not applied. The authors also identified issues relating to the reliability of the method used to identify interpersonal patterns, in that some of the QUAINT items retained for analyses only had marginal reliabilities and some of those not retained had weak reliabilities. The potential for effects resulting from confounding variables is also acknowledged.
6.3 Findings Relating to Patient Factors

6.3.1 Personality

Whilst IPT does not seek to change personality, articles looking at dimensions of personality which interact with treatment were considered relevant as they have a potential effect on outcome. A study by Blom, Spinhoven, Hoffman and colleagues (2007) looked at personality factors associated with the Five Factor Model (FFM). They failed to find any significant effects on outcome on the basis of these dimensions. Limitations to this study were that only 71.5% of the sample completed treatment and only short-term predictions of outcome were considered. In addition to this, the population studied were out-patients attending secondary and tertiary clinics and therefore findings may not be generalisable to less chronic or severe populations.

Barber & Muenz (1996) looked at the effect of avoidant and obsessive personality dimensions on treatment outcome. Their findings suggest that, IPT was more effective with increasing levels of obsessiveness, and CT with increasing levels of avoidance. These findings are interpreted from the perspective that obsessiveness is an index of internal coping strategies and avoidance is an index of external strategies. Those with internalised coping skills are described as self-punishing, using undoing behaviours, worried, and with restricted affect; whereas, externalising patients rely on acting out, externalising, and direct avoidance of responsibility. The authors argue that these findings support Kiesler’s (1986) argument regarding complementarity, which suggests in order for therapy to be a corrective experience therapists should work in an antithetical way. Therefore, IPT is considered effective for patients higher in obsessiveness, as it works in an antithetical way by encouraging affect and avoiding intellectualising problems. CT is considered
effective for avoidant clients as there is more of a focus on confronting anxiety-provoking situations. Study limitations include relatively small samples sizes and limited generalisability due to measurements used to differentiate between avoidant and obsessive clients, as these were based on single items. The degree to which personality dimensions and attachment styles overlap is not clear from this study and may warrant further investigation.

6.4 Findings Relating to Attachment

McBride, Atkinson, Quilty, and Bagby (2006) looked at the relationship between dimensions of attachment insecurity (anxiety and avoidance) and treatment outcome in Cognitive Behaviour Therapy (CBT) and IPT. They used the Relationship Scale Questionnaire (RSQ1; Griffin & Bartholomew, 1994) which is a self-report measure of attachment profile. They found that attachment anxiety did not significantly predict outcome in either treatment condition. Patients high in attachment-avoidance responded better to CBT, even after controlling for personality dysfunction. The authors speculate that this may relate to the remote and distant nature of avoidantly attached individuals and possibly differences in the value that they place on cognition over emotion. Given the interpersonal emphasis within IPT, and the importance of affect elicitation, this seems plausible. Another possible interpretation that the authors offer is that attachment-anxiety is not a stable predictor of outcome as it is more sensitive and amenable to change than attachment-avoidance. Limitations to this study include the relatively small sample and the high proportion of participant dropout. Additionally, the study relies on the use of self-report measures in determining attachment style. Using a combination of methods would have strengthened the study and enhanced our ability to draw conclusions.
Ravitz, Maunder, McBride (2008) conducted a large scale case series which looked at changes in attachment insecurity and interpersonal problems. Attachment insecurity was measured using the Experiences in Close Relationships Scale-revised (ECR-R: Fraley, Waller & Brennan, 2002) which relies upon self-report methods. Interpersonal problems were measured using the Inventory of Interpersonal Problems (IIP-64; Horowitz et al. 1988). Interpersonal problems were clustered into eight domains: domineering, vindictive, overly-cold, socially avoidant, non-assertive, exploitable, overly nurturant, and intrusive. Across the sample that completed treatment, they found a significant decrease in attachment-anxiety, attachment-avoidance, and interpersonal problems. Patients identified as ‘full’, or ‘partial’, responders had a significant reduction in interpersonal problems across the range of the interpersonal circumplex, apart from dominance which approached significance. Full responders also demonstrated a significant reduction in attachment-anxiety and avoidance. This finding is interesting given the enduring nature of attachment style and the short timeframe of IPT; particularly, given that it is generally considered unlikely that attachment style will be altered in response to IPT as a result of its time-limited nature (Champion, 2012). Among those who completed treatment, non-responders started therapy with significantly higher levels of interpersonal problems, attachment-anxiety, and depression, but did not differ with respect to attachment-avoidance. The authors suggest that this may reflect bias within the self-selection process which may have naturally excluded those high in avoidance. The high treatment response rates are also called into question by the authors who suggest this may also reflect bias in the selection process. The limits of a case-series design also apply.
Cyranowski et al., (2002) explored the relationship between adult attachment profiles and response to IPT. The Relationship Questionnaire (RQ, Bartholomew & Horowitz, 1991) was used to identify whether clients fit a ‘secure’, ‘dismissing-avoidant’, ‘preoccupied’, or ‘fearful-avoidant’, attachment profile based on patients’ self-ratings. There were no significant differences in remission rates between attachment profiles. However, they found that among patients who remitted, high fearful-avoidant attachment ratings were associated with longer time to stabilisation. They also found a trend toward shorter time to stabilisation in those with high secure attachments ratings. These findings are not surprising given that fearful-avoidant attachments are associated with negative views of self and others, which make people fear intimacy and avoid social contact (Bartholomew & Horowitz, 1991). Neither dismissing nor preoccupied ratings were correlated with time to stabilisation. It may be that the longer response rate in the fearful-avoidant group reflects associated difficulties in treating clients who do not hold positive views of self or others. Limitations to this study include potential bias associated with using a single self-report measurement for attachment style. Another factor which may have influenced findings is, the number of patients who were identified as fearful-avoidant (n=69) which was disproportionate to those identified as secure (n=35), preoccupied (n=33), and dismissing-avoidant (n=25).

6.5 Findings Relating to Health-Related Beliefs

Brown, Schulberg and Prigerson (2000) looked at the association between a range of psychosocial and clinical characteristics, and beliefs about health and treatment outcome. They found that perceived control of health was the only variable significantly related to outcome in IPT. One interpretation could be that patients with
higher levels of perceived control over their health were more responsive to IPT because they were more receptive to the ‘medical model’ approach, which conceptualises depression as a treatable illness. When interpreting findings it is important to note that this study included an additional four monthly continuation-phase following the acute phase of treatment.

6.6 Findings Relating to Self-Criticism

Marshall, Zuroff, McBride and Bagby (2008) looked at the relationship between self-criticism, dependency, and treatment outcome. They found a significant positive relationship between self-criticism and higher post-treatment depression scores which was not found in the CBT condition. As the authors suggest this may reflect the fact that patients who are highly self-critical are less responsive to an interpersonal approach, as they are less concerned with interpersonal issues. One of the strengths of this study is that the recruitment process did not rely on the use of an established clinical sample.

6.7 Findings Relating to Social Factors

6.7.1 Availability of Support

In addition to the findings in relation to dimensions of avoidance and obsessiveness, Barber and Muenz (1996) found differences in response between patients identified as married or co-habiting and those identified as single, separated, or divorced. IPT was more effective for non-married, non-cohabiting, patients. This might be expected as patients who are single, or categorised within the single domain, may benefit more from addressing interpersonal goals than those who have access to a significant other. This suggests that, as social theory suggests, inadequate
social support may be responsible for psychological distress, in some cases. However, this finding does not suggest anything about the quality, or perceived availability, of these relationships, or the nature of the support available to those categorised as single, which may be an interesting further line of research.

6.7.2 Social Functioning

Whisman (2001) conducted a study which looked at the association between depressive symptoms at treatment outcome and pre / post marital adjustment. The treatment conditions included were CT, IPT and Impramine + placebo and placebo + clinical management. They found patients demonstrated significant improvement in marital adjustment following treatment. However, these effects were moderated by changes in depression rather than by treatment type. This finding was interesting given the interpersonal focus of IPT and the fact that the placebo + clinical management and pharmacotherapy + clinical management conditions did just as well. Whilst IPT was not found to be superior, the association found between marital functioning and severity of depression lends support to social theories underpinning IPT. It is possible that the failure to find differences across treatments merely reflects the limitations of individual therapy in treating depression with patients who are experiencing ongoing marital difficulties (Foley, Rounsaville, Weissman, Sholmaskas, & Chevron, 1989). In addition to this finding, the study found that poor pre-treatment marital adjustment is associated with poorer outcome, and poor post-treatment marital adjustment is strongly associated with poorer long-term outcome. The measure used to determine marital adjustment was the Marital Adjustment Scale (MAS); a subscale of the Social Adjustment Scale (SAS; Weissman & Paykel, 1974). Pre-treatment and post-treatment coefficients were moderate .67 and .68
respectively. A more robust measure and a larger sample size may have improved this study.

The study by Rounsaville, Weissman, and Prusoff (1981) found that poorer pre-treatment social functioning was predictive of poorer outcomes in IPT. This suggests that in order for patients to benefit from IPT, they may need a certain degree of interpersonal effectiveness. This is not surprising given the interpersonal nature of the approach and its focus on improving and expanding social networks. Additionally, if the patient lacks insight in relation to social functioning, it may be more difficult for them to make links between interpersonal difficulties and depression. Another interpretation of this could be that depression which occurred within the context of better social functioning was indicative of situational rather than personality factors, which one could assume would be easier to treat. The study also looked at the relationship between global prognostic factors which were measured using the Prognostic Index (PI; Auerbach, Luborsky & Johnson, 1972) and response to IPT. Response was indicated by reduction in depressive symptoms. The PI contains five underlying dimensions: aptitude for psychotherapy, emotional freedom, acute depression, general emotional health, and intellectual achievement. Their findings indicate that patients who perform better on the PI received better ratings on measurements of psychotherapy process, demonstrated greater reduction in depressive symptoms, and greater improvements in social functioning. Findings demonstrating that patients who performed better on the PI, and in particular the measure of general emotional health, also suggest that general functioning is an important pre-requisite to positive outcome in IPT.
Sotsky, Glass, Shea, and Pilkonis (1991) also looked at the relationship between social functioning and response. Their results also supported the finding that greater impairment in social functioning is associated with poorer response in IPT. This study also looked at other variables which relate to social functioning such as work dysfunction, social satisfaction, and interpersonal sensitivity, within their preliminary analyses but failed to find any relationships with outcome. However, caution should be taken when interpreting preliminary findings given the large number of independent variables included in the analysis in relation to the sample size. Brown, Schulberg, and Prigerson (2000) looked at the relationship between psychosocial factors such as stressful life events and social support and symptomatic improvement. No significant effects were found between social functioning and treatment outcome. Carter, Luty, McKenzie and colleagues (2011) included a pre-treatment measure of social functioning in their study as one of several patient predictors of response to IPT. However, they also failed to replicate these findings.

### 6.7.3 Interpersonal Factors

Crowe and Luty (2005a) conducted a qualitative study which looked at patterns of response and non-response in IPT, with interpersonal disputes as a focus. They found several factors which differentiated those in the recovery group from those in the non-recovery group. These include: an ability to engage in multiple perspectives, an awareness of others feelings, an ability to use a range of communication strategies and an ability to engage with the therapist. Collectively, these factors appear to represent skills associated with interpersonal effectiveness. Other factors identified were: a desire to make change, a sense of self-responsibility, and a desire to act cooperatively. These factors appear to reflect
motivational attributes that would facilitate engagement in any therapeutic modality. When interpreting these findings it is important to note that some participants included received fortnightly maintenance sessions for 6 weeks following treatment.

7. Conclusions

This review attempts to build our understanding of how current research informs our knowledge about the mechanisms underlying IPT’s effectiveness. As one might expect, findings suggest that there are a range of social and interpersonal factors which influence receptiveness to the IPT approach. From the papers reviewed, it would appear that in order to benefit from the approach, patients may require some ability to engage on an interpersonal level and need to place some value on interpersonal relationships. There appears to be conflicting evidence regarding the effects of social functioning. Research in this area may benefit from studies which look at multiple measures of social functioning. There appears to be some evidence that lack of social support results in a worse prognosis. However, there is very little information about the quality, nature, or perceived availability, of relationships. This is another area which may benefit from research.

The findings from the papers reviewed suggest that avoidant attachment styles are associated with poorer treatment outcome in IPT. This is understandable given the approach’s interpersonal emphasis. On the basis of this, further research into how IPT can be adjusted to work more effectively with this group is warranted. The finding that that attachment styles can be shifted in IPT is interesting given the short-term nature of the approach and the enduring nature of attachment style. Given
the limitations associated with a case series design, this is also an area that may benefit from further research.

Personality factors appear to play a role in a patient’s ability to successfully engage with IPT, and in the building of effective alliances. This is not surprising given the interpersonal nature of the approach. There appears to be very little research into the way in which therapists adjust their dispositional style to adapt to personality factors and whether or not this reflects complementarity.

The aims of the review were to identify mechanisms underlying the effectiveness in IPT in relation to the theories which are identified as central to the approach. However, there are several areas which are identified as key ingredients which may warrant further research. Given the importance of the medical model, there appears to be a lack of research into its role in the mechanisms underlying change. Other areas which warrant further research include the role of affect and of interpersonal accuracy given their central features and the limited evidence available.

The qualitative research adds to our understanding by generating some interesting ideas about the more subjective, qualitative, aspects of IPT. Further research into how some of the qualitative aspects identified relate to treatment outcome may provide a better understanding of the mechanisms underlying effectiveness in IPT.

Cumulatively, these findings suggest that further research is needed in order to develop our understanding of the mechanisms underlying change in IPT. In doing so, attention should be given to the theoretical and distinctive features underpinning the approach, as this provides a useful basis for further developing existing knowledge.
8. Limitations

Several limitations apply to this review. Books and dissertations were excluded from the search criteria. The review is limited to published journal articles. The authors of the literature reviewed were not contacted in order to enquire about unpublished or future research due to time constraints.

9. References


Crits-Christoph, P., Connolly, M. B., Shappell, S., Elkin, I., Krupnick, J., & Sotsky, S. (1999). Interpersonal narratives in cognitive and interpersonal


trial of interpersonal psychotherapy versus cognitive behaviour therapy. 
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## Appendix 1: Table Including Quantitative Studies

<table>
<thead>
<tr>
<th>Study</th>
<th>Sample¹</th>
<th>Treatment²</th>
<th>Variable(s)³</th>
<th>Measure(s) / instrument⁴</th>
<th>Summary of findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barber &amp; Muenz (1996). USA</td>
<td>n= 84 completers sample MDD</td>
<td>CBT(m), IPT(m)</td>
<td>Personality dimensions: Avoidance / Obsessiveness Treatment outcome</td>
<td>HRSD (Hamilton, 1960), BDI (Beck, Ward, Mendelson, Mock &amp; Erbaugh 1961), PAF (Shea, Glass, Pilkonis, et al. 1987)</td>
<td>Initial analyses were conducted using the HDRS as a measure of treatment outcome. A significant interaction was found between marital status and treatment type (R² .473, p=.002). This indicated that IPT was more effective than CT with single, separated or divorced patients. When marital status was held constant, significant interactions were found between obsessiveness and treatment in the direction of IPT (p=.006) and avoidance and treatment in the direction of CT (p=.032). This indicates that IPT was more effective with increasing level of obsessiveness, whereas CT was more effective with increasing level of avoidance. Significant avoidance (p=.04) and obsessiveness (p=.02) treatment interactions were also found in the same direction when the BDI was used as a measure of outcome. No marital x personality dimension interactions were found. Main effects which approached significance (p=.057) were also found for...</td>
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¹n, number of participants meeting study criteria, nt, number of transcripts. MDD, Primary diagnosis of Major Depressive Disorder; TDCRP Indicates sample drawn from National Institute of Mental Health

² CBT(m), Cognitive Behavioural Therapy (manualised); CT, Cognitive Therapy; IPT, Interpersonal Psychotherapy (manualised), PIA, Placebo; CM, Clinical Management; IMP, Imprimine, PHT, Pharmacotherapy; NT, Nortryptiline; UC, Usual Care; N, Nefazodone; ADM, Antidepressant Medication; TOD, Treatment On Demand

³ Where not otherwise stated treatment outcome refers to reduction in client-rated or therapist rated depressive symptoms.

⁴ HRDS, Hamilton Rating Scale for Depression; BDI /BDI-II, Beck Depression Inventory II; RSQ, Response Scale Questionnaire; RSQ1, Relationship Scale Questionnaire; RQ, Relationship Questionnaire; SAS, Social Adjustment Scale; WAI, Working Alliance Inventory; SADS, Schedule of Affective Disorders and Schizophrenia; IMI, Impact Message Inventory; CSPRS, The Collaborative Study Psychotherapy Rating Scale; RFD, Reason for Depression Scale; VTAS, Vanderbilt Therapeutic alliance Scale; SCID (I/P,II,PQ), Structured Clinical Interview for DSM-IV (axis I-patient edition, axis II, Patient Questionnaire), DEQ, Depressive Experience Questionnaire, PAM, Painful Affect Measure; SAS, Social Adjustment Scale; MAS, Marital Adjustment Scale; DAS, Dysfunctional Attitude Scale, NEO-FFI, NEO Five Factor Inventory; Montgomery-Asberg Depression Rating Scale; ECR-R, Experience in Close Relationships Revised; IIP-64, The Inventory of Interpersonal Problems-64; IIP, Index of Interpersonal Problems; HCL, Health Locus Control; PI, Prognostic Index; PQS, Psychotherapy Process Q Set; QUAINT, Quantitative Assessment of Interpersonal Themes.
practice in naturalistic settings. Strict exclusion criteria also limits generalisability.

The R² and adjusted R² for the 9-term model were .496 & .435 respectively.

<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Sample Size</th>
<th>Design</th>
<th>Generalisability Considerations</th>
<th>Measures</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blom, et al., (2007)</td>
<td>Netherlands</td>
<td>n = 138 completer sample randomised MD</td>
<td></td>
<td></td>
<td></td>
<td>None of the personality dimensions were significantly related to outcome (p&lt;.05). Point-biserial correlations across the dimensions were small: Neuroticism: r = 0.003, p = .967 Extroversion: r = -0.05, p = .523 Openness: r = 0.000, p = .997 Agreeableness: r = 0.044, p = .0574 Conscientiousness: r = 0.06, p = 0.449</td>
</tr>
<tr>
<td>Brown, et al., (2000)</td>
<td>USA</td>
<td>n1 = 181 randomised MDD</td>
<td></td>
<td></td>
<td></td>
<td>Perceived control of health was significantly associated with improved outcome in IPT (R = .43, adjusted R² = .16, p=.002).</td>
</tr>
</tbody>
</table>
### Carter et al., (2011)

**New Zealand**

- **n = 177** randomised MDD
- **CPDS**

**Generalisability considerations:** The study IPT arm was predominantly female (76%), Strict exclusion criteria were applied.

**IPT(m), CBT(m)**  
**Rumination, Reason for depression, Dysfunctional thinking, Social function**  
**Treatment outcome**


No significant main effects were found in relation to treatment and outcome. The only significant interaction with IPT was personality disorder symptoms (adjusted $R^2 = .12, p=.006$).

### Constantino et al. (2010)

**Canada**

- **n = 74** randomised MDD
- **Sample:** subsample of naturalistic database of adult outpatients treated at a mood clinic.

**Generalisability considerations:** Strict exclusion criteria were applied. The sample was fairly homogenous: predominantly Caucasian, female (74%), educated beyond high school (81%).

**IPT (m)**  
**Patient interpersonal impacts**  
**Therapeutic alliance**

**BDI-II** (Beck, Steer, Ball & Ranieri, 1996), **WAI** (Horvath & Greenberg, 1989), **IMI** (Kiesler & Schmidt, 1993)

Bivariate correlations between patients and demographic / diagnostic variables in the preliminary analyses revealed a significant correlation between medication and alliance ($r = .27, p < .05$). Therefore this variable was included as a covariate in the primary analysis. Patients with affiliative interpersonal impacts reported better alliances with therapists ($B = .78$, SE = .25, $p<.01$). Medication status was also associated with alliance ($B = 14.80$, SE = .33, $p<.05$). Baseline depression was unrelated.
Coombs et al., (2002)  
USA  
n = 64 transcripts available from completer sample  
nt = 128  
Randomised MDD  
TDCRP  

| CT(m), IPT(m) | Factors associated with treatment:  
**Collaborative emotional exploration:** reflects therapist stance towards emotion that encourages emotional expression and exploration of patient feelings as central to therapy.  
**Educative / directive Process:** indicates a stance that de-emphasises emotion and actively redirects attention to cognitive themes whilst educating and advising about practicing change outside of therapy.  
**Patient inhibition:** this describes patient characteristics describing a client stance that is controlled and inhibited.  
Stance towards patient emotion  
Treatment outcome |
|---|---|
| BDI, HRSD, PQS (Jones, 2000), PAM | No significant differences in the amount of patient painful affect in CBT and IPT were found. Factor analyses of PSQ ratings identified 3 process factor items.  
Significant differences between item means were found between CBT and IPT, with IPT scoring higher on ‘collaborative emotional exploration’ (M= 6.13 ± sd 0.87 vs 5.31± 1.09 p<.001) and ‘patient inhibition’ (5.50 ± 1.04 vs 4.83 ± 1.27, p=.002) and CBT higher in ‘directive process’ (5.03 ± 1.20 vs 7.24 ± .74, p<.001).  
There was a negative correlation between painful affect and collaborative emotional exploration (t = -.31, p<.001). This was repeated for directive processes (t = -.23 p<.01).  
When controlling for pre-treatment level of depression, collaborative emotional exploration was associated with lower level of client-rated depression (partial r = -.47, p<.001) and clinical evaluator-rated depression across treatments (partial r= -.38, p<.003). A significant negative correlation was found between patient inhibition and patient-rated depression (partial r = -.34, p<.006) and a negative correlation approaching significance for clinical evaluator-rated depression (partial r = -.25, <.051), indicating a reduction in symptoms. No significant correlations were found for directive process.  
No significant differences were found between the treatment conditions on the painful affect measure.  

<p>| Painful affect in sessions was positively correlated with higher depression scores at termination (BDI-II partial r = .43, HRSD partial r = -.25, p&lt;.001). |</p>
<table>
<thead>
<tr>
<th>Study</th>
<th>Participants</th>
<th>Measures</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crits-Christoph et al., (1999)</td>
<td>USA</td>
<td>n = 80&lt;br&gt;nt = 288/260&lt;br&gt;MDD&lt;br&gt;TDCRP</td>
<td>CT(m), IPT(m)</td>
</tr>
<tr>
<td>Crits-Christoph et al., (2010)</td>
<td>USA</td>
<td>n = 72&lt;br&gt;nt = 288/260&lt;br&gt;MDD&lt;br&gt;TDCRP</td>
<td>CT(m), IPT(m)</td>
</tr>
<tr>
<td>Study</td>
<td>Sample Size</td>
<td>Study Design</td>
<td>Treatments</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
<td>--------------</td>
<td>------------</td>
</tr>
<tr>
<td>Cyranowski et al., (2002)</td>
<td>n=162</td>
<td>at least second episode MDD</td>
<td>IPT(m)</td>
</tr>
<tr>
<td>Krupnick et al., (1996)</td>
<td>n = 225</td>
<td>Randomised</td>
<td>CBT(m), IPT(m), IMP-CM, PLA-CM</td>
</tr>
</tbody>
</table>
| McBride et al., (2006) | n = 56 MDD
| Canada | Randomised CAHM
| | Attachment insecurity (anxiety & avoidance) |
| | HRSD, BDI-II, RSQ1 (Griffin & Bartholomew, 1994) |
| | Attachment anxiety did not significantly predict treatment outcome in either treatment condition. |

Hierarchical linear regression analysis

Model 1: BDI-II post-treatment scores as outcome:
Patients' high in attachment avoidance responded better to CBT than IPT. The simple slope was significant for the both treatment conditions (IPT: B = 2.33, SE = .17, \( \beta = .38, p<.05 \); CBT: B= 1.79, SE =.20, \( \beta = -.43, p>.05 \)).

Model 2: HRSD post-treatment scores as outcome:
Patients' high in attachment avoidance responded better to CBT than IPT. The simple slope was significant for the CBT treatment condition (B = -.84, SE = .18, \( \beta = -.43, p<.05 \) but not for the IPT condition (B= .49, SE =.19, \( \beta = 23, p>.05 \)).

These findings were replicated after controlling for personality dysfunction and when remission served as the categorical outcome variable (p<.05).

| Canada | Randomised
| | Self-criticism & dependency |
| | HRSD, DEQ (Blatt et al., 1976) |
| | In IPT, pre-treatment self-criticism was positively correlated with post-treatment depression scores (r = .33, p<.10 & p>.05).
The results of hierarchical regression analysis indicated that there was a significant interaction between self-criticism scores and treatment condition with self-criticism scores emerging as a positive predictor for post-treatment HRSD scores among patients in the IPT condition (d = .47, p.= .03). |
N = 106 Completer sample MDD

Generalisability considerations: Clinical sample. Non-completers and non-remitters were excluded therefore only 62.7% of the sample who qualified for IPT were included in the study. Exclusion criteria was applied. The sample was predominantly female (71.5%). Ethnicity data is not detailed.

IPT(m)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>SCID-I/P (First et al., 1995), HRSD, BDII, ECR-R (Fraley et al., 2002), IIP-64 (Horowitz et al., 1988)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change on the dimensions of the interpersonal circumplex (dominant, vindictive, cold, socially inhibited, non-assertive, overly accommodating, self-sacrificing, intrusive) and attachment anxiety / avoidance</td>
<td>In the sample that completed treatment there was a decrease in attachment anxiety (M= -0.27 ± s.d. 0.94, df = 105, p=.007), attachment avoidance (M = 26 ± s.d. 94, df 105, p=.004) and in total interpersonal problems (M = -17.5 ± s.d. 29.3, df 104, p&lt;.001). When patients were grouped in terms of treatment response (responder, partial responder and non-responder) significant improvements were found across the full range of the interpersonal circumplex (p&lt;.02) for full and partial treatment responders apart from ‘dominant’ which approached significance (p&lt;.08). Means and standard deviations are given below.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Responders</th>
<th>non-responders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dominant</td>
<td>-2.58 ± 4.60</td>
</tr>
<tr>
<td>Vindictive</td>
<td>-2.22 ± 5.02</td>
</tr>
<tr>
<td>Cold</td>
<td>-2.57 ± 3.80</td>
</tr>
<tr>
<td>Socially inhibited</td>
<td>-2.80 ± 5.37</td>
</tr>
<tr>
<td>Non-assertive</td>
<td>-2.88 ± 5.71</td>
</tr>
<tr>
<td>Overly accommodating</td>
<td>-3.12 ± 5.81</td>
</tr>
<tr>
<td>Self sacrificing</td>
<td>-2.39 ± 5.15</td>
</tr>
<tr>
<td>Intrusive</td>
<td>-1.79 ± 4.16</td>
</tr>
<tr>
<td>Attachment avoidance</td>
<td>-3.3 ± s.d. 1.00, p=.04</td>
</tr>
</tbody>
</table>

Among those who completed treatment, non-responders started therapy with significantly higher levels of interpersonal problems (114.5 ± 25.9 vs 88.3 ± 30.8, p<.001), attachment-anxiety (4.8 ± 1 vs 4.2 ± 1.2, p<.03) and depressive symptoms (BDI 30.8 ± 11.8 vs 25.0 ± 9.2, p<.04) but did not differ with respect to attachment-avoidance (3.6 ± 1.2 vs 3.3 ± 1.2, p =.23).
<p>| Rounsaville, Weissmann &amp; Prusoff (1981) USA | n= 36 completer sample Depressive mood (at least 2 weeks) Randomised Generalisability considerations: strict exclusion criteria were applied. Patients identified as symptomatic failures (patients who had previously responded and then worsened, patients who never shown substantial clinical improvement and patients demonstrating rapid decline) were withdrawn. Patients who deviated from RCT protocol markedly (i.e. refusal of medication or failure to attend) were also withdrawn. The sample was predominantly white (94%), female (85%) | IPT, PHA, IPT-PHA, TOD Patient and process characteristics Treatment outcome: reduction in severity of depression and improvement in social adjustment | HRSD, SAS, PI (Auerbach et al., 1972), POTS (Neu et al., 1978 Poorer pre-treatment social functioning was predictive of poorer social functioning outcomes in IPT (r = .55, p&lt;.001). Initial patient characteristics such as lower depressive symptom level (r = .36), greater intellectual achievement (r = -.38), and greater aptitude for psychotherapy (r = .39) were associated with reduction in severity of depression at outcome (p&lt;.05) as was general emotional health (r = -.67, p&lt;.001). General emotional health was also associated with better social functioning (r = -.38, p&lt;.05). When patient characteristics were controlled none of the psychotherapy process measurements was significantly predictive of outcome. Prognostic index factors: aptitude for psychotherapy (r = -.69, p&lt;.001), general emotional health (r = -.70, p&lt;.001), emotional freedom (r = -.52, p&lt;.01) and intellectual achievement (r = -.41, p&lt;.05) were associated with less use of exploratory techniques. Aptitude for psychotherapy (r = .60, p&lt;.001), general emotional health (r = .51, p&lt;.001), emotional freedom (r = .53, p&lt;.001) and intellectual achievement (r = .45, p&lt;.05) were associated with less use of exploratory techniques. Therapy which was characterised by less exploratory techniques (r = .35, p&lt;.05) and less discussion of major problem areas (r = .37, p&lt;.05) was associated with significant improvements in severity of depression as was therapy characterised by more use of decision techniques (r = -.36, p&lt;.05). None of the process measures were significantly associated with post-treatment social functioning. |</p>
<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Sample Size</th>
<th>Treatment Conditions</th>
<th>Outcomes Assessed</th>
<th>Outcome Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sotsky et al., (1991)</td>
<td>USA</td>
<td>n = 155 / 156 MDD</td>
<td>IPT(m), CBT(m), PLA-CM, IMP-CM</td>
<td>Social dysfunction, cognitive dysfunction, work dysfunction, expectation of improvement</td>
<td>Treatment outcome</td>
</tr>
<tr>
<td>Whisman (2001)</td>
<td>USA</td>
<td>n = 56 MDD</td>
<td>CBT(m), IPT(m), IMP-CM, PLA-CM</td>
<td>Treatment</td>
<td>Marital adjustment</td>
</tr>
</tbody>
</table>

When separated into high and low social dysfunction there was a significant effect found in the low social dysfunction group in that those in the IPT condition had the lowest mean depression scores (F = 4.37, df = 3, 116, p = .006).

For social dysfunction there was a significant interaction (χ² = 7.0, df = 3, p < .07) with the significant treatment effect for IPT, indicating that patients with low social dysfunction in the total sample treated with IPT had a significantly greater chance of complete response than those with high social dysfunction (odds ratio = 5.2; χ² = 7.4, df = 1, p < .01).

A significant effect was found for time (p < .001), indicating that marital adjustment improved with treatment. However, when controlling for severity of depression the effect for time was no longer significant (p > .43) indicating that treatment did not have a direct effect on improving marital adjustment.

There was a significant effect for treatment (p < .05). However, time x treatment interaction effects were not significant (p > .74).

Pre-treatment marital adjustment was positively correlated with therapist rated depression severity post-treatment (partial r = .41; p < .01) and at 6 month follow-up (partial r = .27, p < .05). This indicates poorer marital adjustment is associated with greater depression severity. Post-treatment marital adjustment was positively correlated with therapist rated severity of depression at 6 month follow-up (partial r = .39, p < .01), therapist (partial r = .51) and client rated severity (partial r = .43) at 12 month follow-up (p < .001), and therapist rated depression at 18 month follow-up (partial r = .43).
| Zuroff et al., (2010) USA | n = 157 TDCRP CBT(m), IPT(m), PLA-CM | Rogerian conditions Treatment outcome: overall adjustment & depressive vulnerability (self-critical perfectionism) | CMI, SC-PFT (Zuroff et al., 2004) | No significant differences were found across treatments.  
When looking at overall maladjustment significant effects were found for between-therapist / perceived Rogerian conditions X time interactions ($r = .281$, $p<.01$). Significant effects were also found for within-therapist / perceived Rogerian conditions X time interactions($r = .195$, $p<.05$). Differences between within-therapist and between therapist parameters approached significance ($p<.12$). Patients whose therapists scored highly on measures of perceived Rogerian conditions improved more quickly (slope = -52.56, SE = 2.94, $p<.001$) than those whose therapists were characterised by low mean scores (slope = -52.56, SE = 2.94, $p<.001$).  
When looking at depressive vulnerability a significant effect was found for between-therapist / perceived Rogerian conditions X time ($r = .249$, $p<.01$) but not for within-therapist / perceived Rogerian conditions X time interactions ($p<.50$). The regression parameters differed significantly ($<.05$). Patients whose therapists scored highly on measures of perceived Rogerian conditions showed a more rapid reduction in vulnerability (slope = -.662, SE = .072, $p<.001$) than those whose therapists were characterised by low mean scores (slope = -.593, SE = .074, $p<.001$). |
Appendix 2: Table Including Qualitative Tables

<table>
<thead>
<tr>
<th>Study</th>
<th>Sample&lt;sup&gt;5&lt;/sup&gt;</th>
<th>Treatment</th>
<th>Method of Analysis</th>
<th>Themes</th>
<th>Conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crowe &amp; Luty (2005a)</td>
<td>n =10</td>
<td>IPT(m)</td>
<td>Thematic Analysis</td>
<td>Struggling with the symptoms</td>
<td>Successful response to IPT requires the patient to be able to:</td>
</tr>
<tr>
<td></td>
<td>nt = 120 MDD CPDS</td>
<td></td>
<td></td>
<td>Deconstructing interpersonal patterns</td>
<td>- Develop self-awareness in relation to communication style and relationship patterns.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Altering the patterns</td>
<td>- Be able to see other person’s point of view/perspective.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Reconstructing sense of self</td>
<td>- Recognize their own needs and how they are currently met/unmet.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Establish realistic expectations of what needs can be met by other people.</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>- Explore alternative ways for getting their needs met.</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Identify obstacles to change and overcome resistance to risk–taking.</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Identify strategies for change that feel comfortable and achievable.</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td>- Implement change including actively trying alternatives if a first attempt is unsuccessful.</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Accept what the other person can provide and find other sources for meeting needs.</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Terminate the interpersonal relationship if disadvantages outweigh advantages and attempts at change have been unsuccessful.</td>
</tr>
</tbody>
</table>

<sup>5</sup> Christchurch Psychotherapy for depression study
| Crowe & Luty (2005b) | n = 1  
MDD  
CPDS | IPT(m) | Discourse analysis | 'I am struggling'  
'I don't want to be selfish'  
'I need to trust myself'  
'I just want to be me'  
'I'm not such a drop kick after all'  
'I'm feeling like a person' | The development of a more satisfying subject position facilitated change |
|----------------------|-----------------|-------------------|-------------------|--------------------------------------------------|
| Crowe & Luty (2005c) | n =1  
nt =14  
MDD  
CPDS | IPT(m) | Discourse analysis | Constructing herself:  
'I wouldn't trust me'  
'I have always thought that you need to be somebody'  
'I don't want to make a decision'  
'I don't know what makes me happy'  
'I have got to stop living my life the way everyone else expects me to do'  
'I realise now nothing is ever the wrong decision'  
Construction of the other  
Therapeutic interventions:  
Seeking information  
Exploring beliefs / values / assumptions  
Exploring communication patterns  
Exploring affective patterns  
Exploring alternative subject positions | The patients' reconstruction of her subject position in relation to others facilitated recovery |
Account of Clinical Experience
My first placement was a yearlong placement within a Community Mental Health Team (CMHT) within adult mental health. This placement involved working individually with clients providing therapy predominantly using a Cognitive Analytic framework as well as some cognitive behavioural therapy (CBT). During this placement I helped develop and deliver a ‘hearing voices’ group at an inpatient unit and also gained experience in carrying out cognitive assessments.

My second placement was in a CMHT in an older people’s service. The individual work within this placement was integrative, based on formulations informed by a psychodynamic theory. This placement also provided experience of delivering psychoeducational groups within an inpatient unit and experience of carrying out cognitive assessment, including an assessment within a specialist dementia ward.

My third placement was in a Child and Adolescent Mental Health Service (CAMHS). This placement provided experience of integrative working with children, adolescents and their families in addition to experience of sitting on a reflective team within a specialist solution-focused clinic and family therapy service. I also had experience of working within specialist CAMHS learning disability service. This placement involved working within a range of settings and undertaking joint work with professionals from other statutory organisations, such as teachers and social workers, in order to undertake assessments which might be in the form of school or home observations. I also undertook cognitive assessments.

Following this placement I worked within a specialist adult learning disability team which was integrated with adult social care services. This placement was also integrative, with formulations strongly influenced by social constructionist and
attachment theories. This placement involved working individually with clients using interventions informed by cognitive and behavioural theory, systemic theory, and narrative approaches. A large part of the work within this placement involved consultancy to services and teams working with clients using formulations influenced by the theories mentioned or on the basis of functional analyses. Cognitive assessments were also a requirement of this placement.

My specialist placement was within a specialist CAMHS service for looked after and adopted children (LAAC). This placement involved some individual work, yet the bulk of the work involved working with the complex networks surrounding the child, including carers, social workers, schools and other health professionals. Formulations were highly influenced by attachment and developmental theory. Interventions were integrative and influenced by Dyadic Developmental Psychotherapy, behavioural theory, and systemic approaches. This placement also included experience of cognitive assessment.
Table of Assessments
## Year I Assessments

<table>
<thead>
<tr>
<th>PROGRAMME COMPONENT</th>
<th>TITLE OF ASSIGNMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fundamentals of Theory and Practice in Clinical Psychology (FTPCP)</td>
<td>Short report of WAIS-III data and practice administration</td>
</tr>
<tr>
<td>Research –SRRP</td>
<td>An Evaluation of a post-acute neurological rehabilitation unit.</td>
</tr>
<tr>
<td>FTPCP – practice case report</td>
<td>Assessment and Formulation using a Cognitive Analytical Approach of an Adult Male Survivor of Childhood Abuse and Rape.</td>
</tr>
<tr>
<td>Problem Based Learning – Reflective Account</td>
<td>PBL Reflective Account</td>
</tr>
<tr>
<td>Research – Literature Review</td>
<td>What can IPT outcome research tell us about the mechanisms underlying IPT’s effectiveness in treating adults for depression?</td>
</tr>
<tr>
<td>Adult – case report</td>
<td>Case Report using a Cognitive Analytical Approach with an Adult Male Survivor of Childhood Abuse and Rape.</td>
</tr>
<tr>
<td>Adult – case report</td>
<td>A neuropsychological case report of a 58 year old Female querying early-onset dementia.</td>
</tr>
<tr>
<td>Research – Qualitative Research Project</td>
<td>&gt;&gt;Insert title&lt;&lt;</td>
</tr>
<tr>
<td>Research – Major Research Project Proposal</td>
<td>What are the Interpersonal Mechanisms of Change in IPT for Depression?</td>
</tr>
</tbody>
</table>
### Year II Assessments

<table>
<thead>
<tr>
<th><strong>PROGRAMME COMPONENT</strong></th>
<th><strong>TITLE OF ASSESSMENT</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Research - SRRP</td>
<td>N/A</td>
</tr>
<tr>
<td>Research</td>
<td>Research Methods and Statistics test</td>
</tr>
<tr>
<td>Professional Issues Essay</td>
<td>What are the potential risks and benefits to the provision of Mental Health services in the plans set out in the White Paper, Equity and Excellence: Liberating the NHS (2010)? How might you use psychological theory to help predict the impact of such reform on staff, users and services?</td>
</tr>
<tr>
<td>Problem Based Learning – Reflective Account</td>
<td>Problem Based Reflective Account</td>
</tr>
<tr>
<td>People with Learning Disabilities/Child and Family/Older People – Case Report</td>
<td>A team formulation, informed by psychodynamic thinking, of a female in her 70’s who frequently presents to services with somatic complaints.</td>
</tr>
<tr>
<td>People with Learning Disabilities/Child and Family/Older People – Oral Presentation of Clinical Activity</td>
<td>Working with systems: using psychological formulation to reframe ‘challenging behaviour’ as communication.</td>
</tr>
</tbody>
</table>
Year III Assessments

<table>
<thead>
<tr>
<th>PROGRAMME COMPONENT</th>
<th>ASSESSMENT TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research - SRRP</td>
<td>N/A</td>
</tr>
<tr>
<td>Research – MRP Portfolio</td>
<td>Does “hot cognition” mediate the relationship between dysfunctional attitudes (cold cognition) and emotion?</td>
</tr>
<tr>
<td>Personal and Professional Learning – Final Reflective Account</td>
<td>On becoming a clinical psychologist: A retrospective, developmental, reflective account of the experience of training.</td>
</tr>
<tr>
<td>Child and Family/People with Learning Disabilities / Older People/Specialist – Case Report</td>
<td>Case report using an integrative approach to support a female with a learning disability and her family to think about and adjust to transitional and lifestage issues.</td>
</tr>
</tbody>
</table>