An Investigation of the Factors Associated with Paranoia in the General Population

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Professional Issues Essay

“What distinctive contribution can the profession of clinical psychology make in today’s NHS? In what ways should the profession be concentrating its efforts in the future?”

January 2012

Year 2

5659 words
NOTE

This essay is written in the third person with a first person reflections section at the end in order to address how the essay has influenced my development as a clinical psychologist.

INTRODUCTION

In 2007 the Department of Health defined the role of applied psychologists as “To improve the psychological well-being of the population through working with individuals, families, teams, organisations and communities” (Department of Health, 2007, p9). However, this does not describe how clinical psychologists do this and what unique contributions they can make within NHS settings. In order to examine this it is first necessary to understand the context of the NHS today.

There are a number of contextual factors within the NHS which are affecting the contribution clinical psychologists make and the focus of efforts for the future. With the introduction of “Payment by Results” (Department of Health, 2011) all professionals are being challenged to prove their worth in a system driven by outcomes and value for money. This has caused clinical psychology as a profession to need to justify the expense in employing and training clinical psychologists. Clearly it is not enough to deliver therapy such as CBT as the introduction of the Improving Access to Psychological Therapies (IAPT) programme has meant this can be delivered by cheaper practitioners who don’t take so long to train. It is much easier to demonstrate the value of these practitioners as there is clear outcome data on the interventions they use. Clinical psychology has long advocated evidence-based practice but there is a great deal of variation in the collection of outcome data and of proving the effectiveness of clinical psychologists in practice. It is hoped the incorporation of outcome measures in electronic systems such as RiO will lead to
improvements in collecting such data and to the generation of practice-based evidence (Wolf, 2007).

Furthermore, many of the contributions made by clinical psychologists to teams cannot be demonstrated by simple outcome measures (for example, delivering supervision and consultation). Other ways of demonstrating worth need to be developed for use alongside more traditional outcome measures of symptom reduction. Otherwise in practice psychologists focus on activity such as therapy and not on other activity such as academic work, research and teaching (Wolf, 2007). If the profession is unable to demonstrate the unique and valuable contribution it can make, services will simply employ cheaper practitioners to do what they see as the same job for less money. The impact of the recent recession and budget cuts within the NHS has led to many psychologist posts being cut (see for example, Moloney, 2007). Clinical psychologists are often seen as a significant cost without the corresponding benefit and this needs to change if the profession is to survive (Mowbray, 2010).

The probable introduction of GP (General Practitioner) commissioning and increased competition following the White Paper “Equity and Excellence; Liberating the NHS” (Department of Health, 2010) will mean clinical psychology will have to demonstrate to other professionals who are perhaps unaware of their role what unique contributions they can make. It is likely that services will be redesigned in order to try and improve efficiency and cost-effectiveness. Clinical psychologists need to demonstrate how they can add to this in order to ensure the future of the profession within the NHS.

However, there is disagreement and variation amongst clinical psychologists about what unique contributions the profession can make and what the role is. Some psychologists believe their role is mainly to deliver therapy whereas many psychologists recognise the role encompasses more than this. A recent review of research promoting the scientist practitioner
model found 43.2% of articles focussed on the demand for researchers in order to ensure the future of the profession and 56.8% of articles focussed in the need for practitioners to demonstrate the applicability and value of the profession (Chang, Lee and Hargreaves, 2008).

The scientist practitioner model (Raimy, 1950) has long been the main model used in training and practice. However, there are several flaws in this model and it needs to be adapted to suit today’s NHS. This essay will address the flaws and future direction of the scientist practitioner model in more depth and then go on to discuss the further unique contributions clinical psychologists can make. These include the assessment and formulation of complex cases, consultation, supervision and reflective practice, training and dissemination of knowledge, leadership, research and audit. The essay will conclude that it is necessary for clinical psychology to adapt to meet the changing demands of the NHS and future efforts should focus on those aspects that are unique to the profession.

THE SCIENTIST PRACTITIONER MODEL

The integration of theory, research and practice in viewed as key to the role of clinical psychologists (British Psychological Society (BPS), 2010). This is known as the scientist-practitioner model and has been the basis for clinical psychology for many years. This was first introduced in 1949 at the Boulder conference (Raimy, 1950). The model has changed very little in this time despite big changes in psychology as a profession and the wider social context of the NHS (Chang et al., 2008). It has been argued that the scientist-practitioner model does not accurately reflect the role of a clinical psychologist in NHS settings today as very few psychologists divide their time equally between research activity and clinical practice (Chang et al., 2008). There are many tensions which contribute to this. Firstly, as discussed in the introduction, the pressure on practitioners to account for the cost of employing them and to account for their time means focus is on clinical work which outcomes can easily be demonstrated for (Wolf, 2007).
Secondly, it can be very difficult to unite conceptual and practice-based knowledge in the ways advocated by the model. There is a gulf between the practices recommended by evidence from randomised controlled trials (RCTs) which use very narrow inclusion criteria and very specific interventions and practice in real-life settings with complex cases (Lane & Corrie, 2006; Wolf, 2007). Very little research describes interventions that resemble real-life practice (Wolf, 2007). There is also a gap between the ideals laid out in evidence-based guidelines (for example from NICE) and the reality of delivering these in practice, which is constrained by limited resources (Wolf, 2007). For example, NICE (2009) guidelines recommend all patients with schizophrenia are offered CBT for psychosis and family therapy but in practice this happens very little (see for example Berry & Haddock, 2008). This has caused practitioners to resent directives and targets derived from "evidence" if this does not easily apply to their experience in the real world (Lane & Corrie, 2006). This has been called "the unthinking application of scientism" (Salkovskis 2002; 4). This can be dangerous if psychologists are not allowed to think creatively about an individual problem drawing on their knowledge base and the many types of evidence available to them.

Thirdly, there is disagreement in the application and focus of the scientist-practitioner model in practice. A recent review found no agreement on where clinical psychologists should base themselves and where their identity should lie (Chang et al., 2008). Furthermore, there is disagreement on whether the focus should currently be on research driving the development of the profession or on clinical practice as a way of demonstrating applicability and value (Chang et al., 2008).

Fourthly, the model can be seen as over-simplistic as it ignores the many other skills psychologists have which are necessary and useful in making contributions to multi-disciplinary teams. Scientific rigour is not enough in today's competition driven NHS. Additional skills in innovation and creativity are also necessary. The skill of formulation
requires psychologists to “think outside the box” and draw on the aspects unique to the individual concerned rather than focusing on prosaic, “one-size fits all” models. The scientist-practitioner model has traditionally failed to incorporate this creative aspect and should be widened to include this (Lane and Corrie, 2006).

Finally, the traditional model focussed on science informing practice but has not also included how practice can inform scientific enquiry (Lane & Corrie, 2006). As researchers and practitioners, psychologists are in a unique position to contribute to improving the mutuality of this relationship.

Despite the flaws and tensions within the scientist-practitioner model described above, there are still benefits to using this model in describing and informing the contribution clinical psychologists play within the NHS. It is helpful to try and ensure rigour and scientific enquiry are incorporated into practice (Lane & Corrie, 2006). The ability to think analytically, define a problem in terms of questions to be answered, draw on many different sources of knowledge, and look at the wider factors involved in a person’s difficulties means clinical psychologists are uniquely placed to assess and formulate complex cases. The ability to critique and evaluate the work they do means clinical psychologists aim to ensure people receive the most effective and cost-effective treatment and more people receive help (Lane & Corrie, 2006). This means clinical psychologists can make unique contributions to services and to service development as well as the individual clients they work with. For these reasons, it is suggested there should still be an emphasis on clinical psychologists operating as scientist-practitioners but this model should be widened to include the many other unique aspects and skills that clinical psychologists can offer (Lane & Corrie, 2006; Chang et al., 2008). The unique contributions psychologists can make will be discussed in the following section.
UNIQUE SKILLS AND CONTRIBUTIONS

The training and expertise clinical psychologists have makes them uniquely placed to offer several distinct contributions to NHS settings. Several of these will be discussed below. This is not an exhaustive list but these seem the most relevant in the current NHS climate. The British Psychological Society highlights these areas as the core competencies of clinical psychologists (BPS, 2010). Psychological intervention will not be discussed here although it is, of course, part of a clinical psychologist’s role. It is the blend of all the aspects described below along with the delivery of clinical interventions with individuals, families and groups which means clinical psychologists can offer a unique contribution in NHS settings (BPS, 2010).

Formulation and Assessment of Complex Cases and Neuropsychological Assessment

As discussed above, psychologists are uniquely placed to inform assessments and formulation especially of complex cases. This is because clinical psychologists have analytical skills and are encouraged to view the wider perspective. They have knowledge of several models and theories of psychological distress and the many factors which could be contributing to the problem. By viewing the problem in an analytical way clinical psychologists define the key question(s) to be answered and gather evidence in order to reach a conclusion. This will benefit the patient by developing an understanding of their difficulties and possible routes for change.

Clinical psychologists are trained to use psychometric testing methods, structured behavioural methods and observational methods to inform their assessments of people’s difficulties. This is a unique skill which requires training and expertise and can be highly valuable within multidisciplinary NHS settings. Psychologists can assimilate several sources of information into a cohesive assessment. This is especially true in the area of neuropsychological assessment where clinical psychologists can make an extremely valuable
contribution in informing diagnosis and treatment planning. Psychologists are also able to draw on their existing knowledge and experience to devise new assessment tools that are specific to the individual (BPS, 2010).

Psychologists are able to think creatively and draw on several sources of knowledge in order to develop meaningful formulations which can then inform interventions to either be delivered by the psychologist themselves or other practitioners (Lane & Corrie, 2006; BPS, 2010). The many sources include biological, psychological and social factors and psychologists aim to integrate all these into a formulation. This is often in the form of developing hypotheses from which actions can be taken. Psychologists are unique in their knowledge of psychological theory, the ability to apply it to practice, and to review, evaluate, analyse and synthesise, psychological data in order to create an understanding of people’s difficulties. Psychologists are also highly skilled in the written and verbal dissemination of such theory to service users and carers as well as other professionals (BPS, 2010).

Supervision

There are a number of benefits to supervision of clinical practice and supervision is mandatory for most health care practitioners. Clinical psychologists are well placed to offer supervision to other psychologists, trainees and other practitioners. This is due to the extensive knowledge of different models and theories, the expertise clinical psychologists have gained through experience and the ability to integrate different ideas and think creatively around problems. Supervision can ensure less experienced practitioners work safely and within their skills and can aid in the development of practitioner’s knowledge. Through supervision psychologists can ensure others learn in a personalised way and can enable others to apply psychological thinking to practice. Supervision can be viewed as a way of creating a successful, distinct knowledge culture and this can be a valuable contribution to the culture of the team (Lane & Corrie, 2006). Through supervision of other, less expensive,
practitioners, such as IAPT workers, trainees, assistant psychologists, and other therapists, clinical psychologists can ensure their valuable knowledge and expertise informs the care of a larger number of patients than they would be able to treat themselves.

Clinical psychologists are also ideal to offer group supervision to teams of workers due to their knowledge of team processes and their skills in working with groups of people. A further aspect clinical psychologists can bring to supervision is the skill of being reflective which is discussed further below.

**Reflective Practice**

There has been increasing emphasis in recent years on clinical psychologists being reflective practitioners (BPS, 2005). Self-awareness is promoted and clinical psychologists are encouraged to reflect on their own personal and professional development both in training and when qualified. This ensures psychologists are accountable for their work and that they work ethically within the boundaries of their skills and knowledge (BPS, 2010). This includes reflecting on the impact of social and cultural factors and including these when thinking about individual cases and teams.

Within busy NHS settings the ability and space to be reflective is often lost. Evidence from practice would suggest that many practitioners from many disciplines would value space to discuss and think about the complex issues facing them in their work. However this is not a priority of managers and commissioners who want the best value for money and want the maximum of time possible spent with patients achieving measurable outcomes. As professionals in high positions within teams, clinical psychologists are able to advocate and deliver reflective practice sessions to teams and are able to use the evidence available to them to demonstrate the value of this to managers. Time spent at meetings with psychologists working in hospital settings would suggest that many clinical psychologists view providing reflective practice as a crucial and unique part of their role.
Evaluation, Audit and Research

An important part of a clinical psychologist’s work is to evaluate the factors bringing about effective change. This can include the design, development, modification and implementation of strategies to improve clinical outcomes and to manage complex and demanding cases (BPS, 2010). Clinical psychologists are encouraged to evaluate their own individual work and also evaluate wider service-level provision. This can contribute to the improvement of services for service users and carers.

Clinical psychologists have the ability to analyse and critically evaluate research and to use research to inform practice. With their skills in conducting, planning and organising research they can also ensure research is conducted which is clinically relevant and can guarantee research is based on questions derived from clinical practice (BPS, 2010). This ensures a process where there is a flow of information from research to practice to research.

As well as evidence-based practice, clinical psychologists can contribute to practice-based evidence through the use and development of reliable outcome measures (Wolf, 2007).

Clinical psychologists are uniquely placed to bridge both the academic and clinical worlds through their training as scientist-practitioners. Many NHS trusts are focussing on the development of research within their organisations as a way of increasing funds coming in to the organisation and to improve the services they offer. Local trusts have recently set-up research departments and have employed clinical psychologists in roles leading these.

Teaching, Training and Sharing Knowledge

Clinical psychologists are a source of knowledge of psychological models and theories. They can contribute to a whole team’s knowledge of such theory through formal teaching and training and more informal sharing of knowledge at team meetings and discussions. They are able to deliver teaching which takes into account the varying needs, goals and abilities of the different parties involved (BPS, 2010). Through creating a shared
psychological understanding within teams and advocating viewing a broader perspective than one model (e.g. a medical model), clinical psychologists are able to ensure the whole case load of the team receives an individualised and effective treatment. This can lead to improved outcomes, increased effectiveness and cost efficiency within a whole team. This means the expense of employing a psychologist within a team can be justified by the benefits received by the team as a whole not just the individuals on a clinical psychologist’s case load.

Consultation

As clinical psychologists are often a limited resource, consultation is one way to ensure psychologists can have an effective impact on as many people’s psychological wellbeing as possible. This can take several forms but often focusses on using the psychologist’s specialist assessment and formulation skills to develop an understanding of the person’s difficulties in order to inform treatment. Sometimes this will involve the psychologist meeting the individual for a short period of time, other times this will involve meeting with the team supporting the person and examining with them how they could think differently about the problem. Increasing emphasis is being placed on consultation especially for clinical psychologists at higher levels of experience and pay. Consultation models have been used widely within some services such as learning disability and challenging behaviour services. Clinical psychologists working within other services such as adult mental health services would do well to adopt aspects of these models into their work. This could help reduce waiting lists and ensure a larger number of people receive help.

Leadership

With the introduction of New Ways of Working (see for example, Department of Health, 2007), the focus for leadership became that of competence rather than profession. Increasingly clinical psychologists are taking up positions of leadership within NHS settings and they are being increasingly expected to do so (BPS, 2010). Applied psychologists are
seen as important sources of knowledge in the “normal” psychological processes around change and transition and how these affect the individual, group and system (BPS, 2007). Change and transition are very common in NHS teams and they have to be addressed in order to enable teams to work effectively. The combination of knowledge around group processes, good communication and organisational skills, high levels of knowledge and expertise in psychological theory and good interactional skills make psychologists well placed to become leaders of services.

There needs to be more of a focus on leadership in the future, frameworks need to be developed to aid the progression of clinical psychologists into leadership roles and training needs to include aspects on leadership (BPS, 2007). This will help to ensure clinical psychologists can make an active contribution to services at a high level.

**Service Development**

As well as contributing to service development through leadership at strategic level, clinical psychologists of all levels can contribute to service development and can play an important role in this area. This can include working with service users and carers to facilitate their role in service planning and delivery, understanding and working with issues affecting organisational change, developing partnerships with commissioners and other parties, and using psychological knowledge and theory to design psychologically effective services (BPS, 2007; 2010). Furthermore, service evaluation, audit and research conducted by clinical psychologists can be used to develop effective services and highlight areas for improvement.

**WAYS FORWARDS AND IDEAS FOR THE FUTURE**

The unique abilities and skills that clinical psychologists can bring to NHS settings are discussed above. Unfortunately it seems in practice these skills and abilities are not being used either due to service pressures for outcomes or constrictive service designs. Moreover not all psychologists view these aspects as part of their role. In order to ensure the future of
the profession it is important that clinical psychologists emphasise their worth and what they can offer to services. Services also need to be re-designed away from the psychiatrist dominant medical model to a more collaborative, multi-disciplinary, individualised model. This was started by the “New Ways of Working” initiative (see for example, Department of Health, 2007). More needs to be done to ensure that clinical psychology continues to have a contribution within the NHS. Some writers have argued that dramatic changes need to happen to service design and clinical psychologist’s attitudes and approach otherwise psychology will have no future within the NHS (Watson, 2003, cited in Mowbray, 2010).

Therefore clinical psychology needs to adapt and services need to change in the future. Several ideas and focusses have been suggested for this. Firstly, the BPS has recently published a document focussing on psychological health and wellbeing and how clinical psychologists can contribute to the improvement of this (BPS, 2009). With the development of IAPT services and the increasing focus on treating mental health problems quickly and effectively in primary care, there is a new area in which clinical psychologists can make a useful contribution. This can include using psychological theory to improve access for those who do not currently access services, for example men and people from ethnic minority backgrounds. Furthermore these services are often not led by psychiatrists and there is increasing scope for clinical psychologists to lead, design and shape these services. Focussing on wellbeing also highlights a shift in the rhetoric surrounding mental health from focussing on the few with severe and enduring “illness” to promoting a focus on keeping mentally healthy.

The focus on mental health and wellbeing can be spread to the workplace, both within an NHS context and a wider context. Presenteeism is where people attend work despite feeling unwell. This leads to reduced productivity and effectiveness and costs companies a great deal. In light of Dame Carol Black’s (2008) report into staff sickness, presenteeism and
absence, there has been a great focus on keeping people in work well physically and especially psychologically. Clinical psychologists could play an effective role in improving the wellbeing of the whole workforce by developing programmes and services focussing on the promotion of good mental health (MAS, 2007).

Mowbray (2008; 2010) has described his vision of the future where clinical psychologists are instrumental in the establishment of centres for psychological health and wellbeing which provide psychological services to whole communities. These would be social enterprises owned by psychologists and be home to psychologists with many different interests offering a range of psychological therapies (Mowbray, 2008; 2010). This would provide a real alternative to the current system which focusses on mental illness rather than mental wellbeing. This focus would ensure a much larger section of the population would be affected and helped by psychologists and psychological theory and models.

Secondly, it seems the future involves clinical psychologists branching out from the typical NHS settings in which they have traditionally worked. This would include working with other client groups such as cancer patients and patients with other chronic and life affecting conditions. This has already started and it seems will be a fruitful area of focus for the future (Wolf, 2007). Other areas include stroke and neuro-rehab as the survival rates improve and the population is ageing. The older population has long lacked psychological provision but this is changing and this creates an area for clinical psychologists to show their merit.

Thirdly, Mowbray (2008) proposes that psychologists of different specialisms and backgrounds join together to promote psychological thinking within the NHS. He proposed the formation of institutes of healthcare psychology which would draw together all aspects of psychological science which focus on health. This would provide a broader foundation of psychological knowledge, stimulate research, support initiatives including influencing health
policy, and guarantee a focus on psychological principles and theories being applied to all areas of health and healthcare (Mowbray, 2008; 2010). Clinical psychologists cannot afford to be complacent and hope for services within the NHS to change, instead they should be active in creating services and institutions which have a focus on psychological knowledge and practice. The above ideas are just a small sample of the myriad of ways clinical psychologists can creatively contribute to the NHS in future.

**IMPLICATIONS FOR TRAINING AND PRACTICE**

If clinical psychology has to adapt and broaden its scope then training has to adapt at an equal rate. The context of the NHS is constantly changing and it is important for training programmes to keep abreast of this in order to ensure the clinical psychologists they produce are fully equipped for work in the NHS. It seems training programmes attempt to do this by maintaining good links with the NHS trusts they serve and with qualified clinical psychologists working within the area.

It is also the responsibility of trainees to ensure their training provides them with the skills they need. Trainees should seek out opportunities for enhancing the skills described above within their placements and should spend time reading and researching current developments within the NHS and the profession. This can be done by tailoring placement contracts to meet their learning needs which is actively encouraged by training courses. Furthermore trainees should be members of professional bodies such as the BPS and read information and discussions about the future of the profession that are published by them. Personal and professional discussion groups could also be used to share ideas about the future direction of the profession.

However, in reality the pressures of training and the cost of membership of bodies such as the BPS often prevent trainees from spending time considering what skills they will
need post qualification if the NHS is changing. More should be done within training programmes to facilitate and encourage this.

In practice it seems there is a great deal of variation in how clinical psychologists view the future of the profession and where the emphasis of the role should lie. Obviously this will vary from setting to setting but it is discouraging to hear of clinical psychologists who view their role as predominantly to provide psychological therapy and not to use the many additional skills described in this essay. This will have to change if the profession is to continue and it is up to lead psychologists and also newly qualified psychologists to lead the way in forging a distinct and valued role within the NHS.

CONCLUSION

In conclusion, the current context of the NHS and the current status of the profession of clinical psychology mean that clinical psychology needs to prove its worth in order to ensure its future within NHS settings. There are flaws in using the scientist-practitioner model in its current form and this model needs to be adapted to include other important aspects of the work clinical psychologists can do. Clinical psychology can no longer solely focus on their skills as therapists as there are other, cheaper practitioners who have these skills. Instead clinical psychologists need to adapt and be flexible and creative in forging roles which incorporate the many unique contributions they can make to NHS services. The current context of the NHS means that it is uncertain how services will be designed in future. While many find this uncertainty a frightening and daunting prospect, it does create a climate for clinical psychologists to create and design services very different to the status quo which could meet the needs of the wider population better. A few possible examples of this have been discussed.

This essay has argued that clinical psychologists can make several distinct contributions within NHS settings. These include the combination and synthesis of
knowledge of psychological theory, research, and practice. Psychologists are uniquely placed to work across academic and clinical settings and this can have a number of benefits for the profession, services and individuals. This “scientist-practitioner” model should be widened to include the other unique skills of assessment and formulation of complex cases, neuropsychological assessment, supervision, reflective practice, evaluation, research and audit, teaching, training and sharing knowledge, consultation, leadership and service development. The combination of all these different skills and abilities make clinical psychologists uniquely placed to shape the changing NHS and efforts should focus on enhancing these areas in future. Through using this set of skills and abilities, clinical psychologists are able to reach out to a large section of the population and improve psychological wellbeing for as many people as possible.

As things are at the moment, many professionals and lay people are unsure what clinical psychologists do, what is unique to the profession and what they can offer to NHS services. It is clear that if this does not change there is no future for the profession. The profession as a whole and individual clinical psychologists should focus on changing these attitudes, adapting the way they work to suit the needs of the population and the NHS settings they work in. Clinical psychology does have a lot to offer and clinical psychologists have many unique skills which can make a meaningful contribution to improving psychological wellbeing.

REFLECTIONS

On reflection, the writing of this essay has enhanced my development as a clinical psychologist as it has broadened my view of what clinical psychologists can offer with the NHS and in wider contexts. It has helped me to think creatively about how I want to shape my future career and has inspired a passion in me to “think outside the box” in terms of how clinical psychologists can help improve psychological wellbeing. I especially like Mowbray’s
(2008) idea about setting up centres for psychological wellbeing, he has created a more coherent and polished vision of an idea I had had myself.

This essay made me think about how psychologists work within the different settings I have encountered on placement. I have seen a large variation in the role clinical psychologists do play and the influence they have within teams. I have noticed that it is often the role of psychologists to emphasise the importance of thinking broadly around the client and their difficulties and to hold onto wider psychological perspectives. Across my placements emphasis on therapy as the role has varied and the reading for this essay has reinforced my view that while it is an important aspect, it is not the only part of the role. This has made me think about what areas I need to get further experience in and has inspired me to look for more varied opportunities for leadership and development in my next placements.

I am aware that my current position as a trainee has influenced this essay. I have committed a great deal to my training so far and at the beginning of my career there is perhaps a need to see all the positive contributions the profession can make and a need to see a future for the profession. This may have influenced my selection and analysis of the literature around this topic.

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A review of the effectiveness of the STEPPS programme for people with a diagnosis of Borderline Personality Disorder

Literature Review

Year 1

December 2010

5994 words
ABSTRACT

Borderline Personality Disorder (BPD) describes a pervasive pattern of symptoms which can have a serious impact on quality of life. It is linked to high suicide and self-harm rates. BPD has been difficult to treat and is over-represented in people using mental health services. Treatments for BPD which are easy to implement, effective, cost-effective and acceptable to patients and staff have been sought. This review examines the evidence of the effectiveness of the STEPPS programme for people with BPD. STEPPS is an adjunctive group programme which is easy to implement and train staff in delivering. The evidence suggests STEPPS is effective in reducing symptoms of BPD but not self-harm behaviours. There are several methodological limitations to the studies conducted so far and further work is needed in this area before firm conclusions can be drawn. The National Institute for Clinical Excellence (NICE) has outlined several priorities for the treatment of BPD; this review considers whether STEPPS meets these priorities.

DECLARATION OF INTEREST

My interest in this topic was sparked by starting my placement. I am based at a busy community mental health team where resources are short. There are many clients on the caseload that have a diagnosis of borderline personality disorder. This client group has historically been difficult to treat and people with this diagnosis often need on-going support from services or have multiple admissions to hospital. In this context a group treatment that is easy to train staff in and requires relatively little input seems intuitively to solve several problems. I have been allocated a client that has completed this programme and I was asked to read up on the subject. All the material accompanying the programme sounds promising but I was interested in discovering what the evidence for this approach is and what it aims to achieve.
INTRODUCTION

Borderline Personality Disorder

The term Borderline Personality Disorder (BPD) is used to describe a pervasive pattern of unstable personal relationships, emotional instability, fluctuating self-image, and impulsive behaviour (NICE, 2009, American Psychiatric Association, 2000). It can involve efforts to avoid real or imagined abandonment, multiple suicide attempts or threats, self-mutilating behaviour, chronic feelings of emptiness, inappropriate and intense feelings of anger and behaviours related to anger, and transient psychotic symptoms (American Psychiatric Association, 2000). BPD is associated with increased use of mental health care facilities (Bender et al., 2001). It can be associated with impaired quality of life and poor social, psychological and occupational functioning (NICE, 2009). BPD affects approximately 1% of the general population and more women than men (NICE, 2009). The prevalence among those using mental health services has been estimated at 15% (e.g. Torgerson, Kringlen and Cramer, 2001) although estimates vary.

Many people find the term Borderline Personality Disorder pejorative, difficult and unacceptable (Black, Blum, Pfohl and St. John, 2004). Bartels and Crotty (1998) have suggested the term Emotional Intensity Disorder be used instead. This term may more accurately reflect the difficulties faced by people with this diagnosis. The ICD-10 category Emotionally Unstable Personality Disorder is comparable to the term Borderline Personality Disorder (NICE, 2009). For the purpose of this review BPD will be used.

Issues facing services

People with a diagnosis of BPD have been denied access to community mental health services because of their diagnosis (NICE, 2009). Traditional mental health treatments including medication are less effective for people with a diagnosis of BPD (NICE, 2009). For this reason treatments specifically for BPD have been developed. These include Dialectical
Behaviour Therapy (DBT) (Linehan, 1993) and Mentalization-Based Therapy (MBT) (Bateman and Fonagy, 2008). DBT seems to be emerging as the treatment of choice (Harvey, Black and Blum, 2010). However, this treatment is lengthy, costly and requires highly skilled therapists that have received considerable training (Harvey et al., 2010). Due to these limitations, services are struggling to provide therapy to the large numbers of people on their caseload with a diagnosis of BPD. There is increasing pressure on services in the UK to be cost-effective, deliver treatments as quickly as possible and to use outcome measures to account for their effectiveness. The increased suicide risk for people with a diagnosis of BPD means they are especially vulnerable and in need of good quality care. A group programme that can be delivered cost-effectively, over a relatively short period, with proven outcomes may meet some of the needs of mental health services.

The STEPPS programme

STEPPS stands for Systems Training for Emotional Predictability and Problem Solving. It is a group programme developed by Blum and colleagues (2002) based on earlier work by Bartels and Crotty (1998). STEPPS is a 20-week programme that combines elements from Cognitive-Behavioural Therapy and skills training with a systems component. The systems component includes friends and family members nominated by the participant to provide support. The programme is adjunctive to on-going individual therapy. STEPPS was developed in order to meet the needs of a rural and dispersed population and the needs of mental health services to provide an effective treatment for people with a diagnosis of BPD that is cost-effective and practical.

NICE guidance

The National Institute for Clinical Excellence (NICE) has recently published guidance on the treatment of BPD (NICE, 2009). The results are inconclusive as there are few Randomised Control Trials (RCTs) evaluating the effectiveness of available treatments.
NICE recommends that treatments are “complex” (comprise of several elements) and that they continue for at least three months. For women who have recurrent self-harm, DBT is recommended (NICE, 2009). The guidance highlights key priorities for treating people with a diagnosis of BPD which can be used to evaluate interventions.

Aims of the review

To date there is no published review on the effectiveness of the STEPPS programme. This review aims to evaluate the available evidence and assess whether STEPPS meets NICE (2009) priorities for treatments for BPD symptoms.

METHOD

The terms Borderline Personality Disorder AND STEPPS OR Emotional Intensity Disorder were entered into the database PsycINFO. Articles were excluded from the review if they did not refer to the STEPPS programme, they were case studies, or access to the full article could not be gained. This left a total of seven articles reporting on the effectiveness of the STEPPS programme plus an editorial discussing the evidence and a letter in response to one of the articles.

REVIEW

The aims and goals of STEPPS

The authors of the programme describe their aims, goals and the potential benefits of STEPPS (Blum et al., 2002; Black et al., 2004). The authors report that STEPPS is cost-effective as it is relatively brief and it is delivered in a group format. Its brief nature means it is applicable to a number of community settings. A manual that can be easily followed means that many staff from a variety of backgrounds can easily be trained to deliver the programme inexpensively. This is contrary to DBT which requires extensive, costly training, for highly experienced practitioners. The manual enables evaluation of effectiveness of the programme as it ensures similar delivery across studies. The STEPPS programme can run alongside any
existing therapy avoiding disruption to the therapeutic relationship; something people with a
diagnosis of BPD find difficult (NICE, 2009).

The integration of several components is a further strength of STEPPS. The systems
element is advantageous because people with a diagnosis of BPD often are enclosed in a
system of unhealthy and dysfunctional relationships. Even if members of the system are well­
meaning, their actions can reinforce dysfunctional behaviours and attitudes. Involving family
and friends can help participants use the material discussed in the group and can enhance the
changes they are learning to make. It also enables participants to take responsibility for
helping key members of their system respond more effectively (Black et al., 2004). STEPPS
uses elements of CBT and skills training which both have a good evidence base.

Current evidence

The first study on the effectiveness of STEPPS was published by Blum and
colleagues in 2002. In this preliminary report, the authors report data for 52 participants, 28
of which completed at least 10 sessions of the programme. The pilot data reported shows a
decrease in BPD symptoms as measured by the BEST (Borderline Evaluation of Severity
over Time) test, a test developed by the authors. Reliability and validity data for this scale are
reported in the article (Blum et al., 2002). The authors also found the STEPPS programme led
to a decrease in negative affect. The effect sizes for these results were large. These results are
from a very small sample of patients, with no control group so little can be generalised from
this study and the reliability is low.

Drop-out rate was high across the study and only data from those who did not drop­
out is presented, this could have led to bias in the results as those who did not complete the
programme may have dropped out due to not finding it helpful. The data collection was
incomplete as it was decided to conduct the analysis after the programme had run, because of
this there were limited assessments done with the participants and only some outcomes were
able to be evaluated. As suicide risk is such an important factor in BPD (NICE, 2009) it would have been beneficial to have data on the effect of the programme on suicide attempts, threats and ideation, and self-harm episodes. The authors acknowledge the limitations of this study and highlight areas for further research.

Blum and colleagues (2002) also report data from a small scale satisfaction survey completed by a sub-set of participants and therapists. This survey found high levels of patient and therapist acceptance for the efficacy and process of the programme. This is an important aspect to consider when evaluating a treatment as participants will drop out if they do not consider the treatment acceptable. Therapists will not refer to the programme if they do not support it. Again this data was only collected from participants who had completed the programme, potentially biasing the results in favour of the programme as those who dropped out are more likely to be dissatisfied.

Black and colleagues (2004) build on the preliminary report described above by describing in more depth the aims and values of the STEPPS programme and detailing what the course entails. They report preliminary evidence of effectiveness although still no RCT had been conducted at this point. Because of this it was unclear whether STEPPS itself leads to positive outcomes or whether a general component of group therapy or on-going individual therapy is responsible. This article also cites preliminary results from the Netherlands suggesting STEPPS can be adapted for use in different countries (Frieje et al., 2002, cited in Black et al., 2004 (original paper in Dutch)).

A randomised control trial was needed to properly assess whether improvements are a result of the effectiveness of the programme, or due to a general factor related to therapy, or improvement that occurs naturally over time. Blum, Allen, McCormick and Black (2008) published the results of a RCT plus one-year follow-up. The study involved 124 participants randomly assigned to the STEPPS programme (65 participants) or Treatment As Usual
(TAU) (59 participants). The sample was representative of those currently using services in Iowa but included few men and people from ethnic minority backgrounds so may not be generalisable beyond White, American women. The results show improvements in scores on the Zanarini Rating Scale for Borderline Personality Disorder (ZBPD), impulsivity ratings, negative affectivity, mood and global functioning measures (Blum et al., 2008). The largest effect size of 0.84 was for the reduction in ZBPD scores. These improvements were maintained at one-year follow-up. This suggests the STEPPS programme can be effective in managing the symptoms associated with BPD over the short and longer-term.

The study found people in the STEPPS group had less emergency hospital visits and less crisis calls, a particularly important finding as these can occur frequently in this client group. However the STEPPS programme had no significant effect on hospital admissions for self-harm another important symptom of BPD.

Unlike studies of other therapies for this client group, this study found treatment gains for the STEPPS programme between week 16 and week 20 (Schulte-Herbrüggen, Koerting and Roepke, 2008, Blum et al., 2008). The authors suggest this may be due to the protective nature of the systems component of the therapy or a buffering effect of the one-year follow-up period (Blum et al., 2008, reply to Schulte-Herbrüggen et al., 2008).

A strength of the study is that several outcomes were used and all measured factors which may have important real-world benefits. The study looked at patient satisfaction and found higher levels of satisfaction among those who completed the STEPPS programme compared to TAU.

The study included patient ratings of symptoms, these showed a high level of agreement with the other outcome measures. However, at follow-up, participant self-ratings were not significantly different between STEPPS and TAU groups. It is positive that the patients' perspective was included as in a real world setting the benefits should be clear to the
patients or they will drop-out or refuse treatment. This study controlled for many factors and provides detailed evidence in support of the STEPPS programme. It deserves credit for being the first RCT in this area and for the thorough approach of the authors.

Silk (2008) credits the authors in the editorial accompanying the article for providing evidence that people with a diagnosis of BPD can make positive gains and remission from symptoms may be possible. Services have previously had a negative view about whether much can be accomplished for these patients and evidence of gains made over a relatively short time period that are maintainable is commendable. Silk (2008) also praises the authors that STEPPS is adjunctive to any existing treatment and therefore one treatment is not pitted against the other to determine which is “best”. Although this is a positive feature of the programme it makes it harder to evaluate as it is unclear whether benefits can be attributed to STEPPS or another factor.

There are several limitations to this study. Firstly, researchers were not truly blind to which treatment group participants were in due to the nature of the design; the authors acknowledge this and that this increased potential bias in the results. Secondly, as with many other studies, there was a high drop-out rate and data for those that dropped out was not included, meaning the reasons for drop-out and potentially less positive effects of the programme aren’t included. Not all participants were assessed at follow-up, thus reducing the power of these results. Furthermore, it is unclear whether there are differences between those assessed at follow-up and those who were not which may have had a confounding effect on the results.

The study was conducted in eight smaller treatment cohorts in different areas over a long period of time. Results were relatively consistent across the groups thus suggesting that STEPPS can be applied to different cohorts with good effectiveness (Blum et al., 2008). However, this variation means different group processes may occur across the cohorts and
have an effect on the results. It is harder to account for possible confounding variables when several cohorts are used. Moreover, the recruitment strategy for the study was mixed; whilst this is positive because it meant a greater variety of participants, sample variety makes it harder to control for other possible contributing factors which may have had a confounding effect on the results.

It has been highlighted that more participants in the STEPPS group received individual therapy than the TAU group and it could be that factors associated with individual therapy account for the improvements seen in the STEPPS group (Schulte-Herbrüggen et al., 2008). It is difficult to control for the effects of individual therapy due to the adjunctive nature of the programme.

High discontinuation rates have occurred in all studies of the STEPPS programme to date. Black and colleagues (2009) report findings of an exploratory study of potential predictors of response to the STEPPS programme using data from the RCT trial described above (Blum et al., 2008). Findings suggest higher baseline symptom severity scores are related to a greater improvement from the programme. Optimum levels of improvement are achieved by participants who attended 15 or more sessions. Factors related to discontinuation were: higher levels of impulsivity as measured at baseline, a higher number of diagnosed personality disorders as well as BPD, and fewer psychotropic medications used. This study is an important first step in assessing which clients are most likely to benefit from the STEPPS programme and who is most likely to drop-out. If factors associated with discontinuation can be highlighted then perhaps extra support can be given to the participants at most risk of drop-out or alternative treatments sought for these clients.

Not all potential variables associated with discontinuation were measured by this study and further work should look at these factors in greater depth including hostility towards treatment and motivational factors. Due to the many variables measured a number of
statistical tests were performed on this data across the two papers (Black et al., 2009; Blum et al., 2008), this leads to a greater probability of type 1 error.

A pilot study on a UK population found comparable results to the RCT described above (Harvey et al., 2010; Blum et al., 2008). Results from 38 participants showed highly significant improvements in mood, BPD symptoms and negative and positive affectivity following participation in the STEPPS programme (Harvey et al., 2010). This study only included 6 men so again may only be generalisable to women as the contribution of gender factors cannot be assessed accurately with such a small sample.

There are a number of weaknesses to this study as well as the small sample. The study does not make it clear what the characteristics of the sample are and it is misleading as to how many participants comprise the sample. There were six STEPPS groups of differing characteristics that were analysed in this study. At the end of the study one group comprised only two participants which raises concerns about the dynamics of this group. Having several groups makes it difficult to account for differing group processes and the results vary across groups. To try and control for the potential variation in groups one facilitator was consistent across three of the groups and another was consistent across the other three. This reduced the possibility that facilitator variation had an effect on outcomes but did not eliminate it. The analysis corrected for some potential biases in the results.

Again there were high drop-out rates and those who dropped out were not followed-up. Again the amount and type of individual support participants received alongside the programme varied and was not controlled for; this could have had an effect on the results. An RCT needs to be conducted in the UK to assess the outcomes of the STEPPS programme compared to current treatment as usual.

Black and colleagues (2008) present preliminary findings from an uncontrolled pilot study that demonstrates the effectiveness of the STEPPS programme amongst a female prison
population. Evidence suggests that 20-55% of women offenders in prisons have symptoms of BPD (Black et al., 2008). Therefore it may be beneficial to provide STEPPS to a prison population. As the programme is relatively brief and it is easy to train facilitators, it can be adapted to a prison environment with relative ease. This study shows that STEPPS can be implemented effectively in a prison; attendance of the programme led to a significant reduction in negative thoughts, symptoms associated with BPD, negative affectivity and depression. Participants also reported high levels of satisfaction with the programme. Effect sizes were similar to those of the RCT reported above (Blum et al., 2008). This successful adaptation of STEPPS highlights the useful versatility of the programme. However, the positive outcomes found could be due to general factors including the extra social support associated with the programme, increased hope, and the therapeutic alliance, rather than STEPPS itself. It could be that any group would yield similar benefits.

Schuppert and colleagues (2009) describe adaptations that have been made to a Dutch version of STEPPS so that it can be used with adolescents experiencing BPD symptoms. An RCT was conducted involving 43 adolescents aged between 14 and 19 years old, 36 participants completed pre and post assessments. Again participants were mostly female. STEPPS and TAU showed an equal reduction in BPD symptoms. STEPPS led to an increase in internal locus of control and increased sense of control over mood swings. Differences between those who dropped out and those that completed the programme were assessed. The authors found that completers had increased levels of internalising behaviour at first assessment; this could be due to increased severity leading to increased motivation to change or to increased insight into their difficulties. This study suggests some potential benefits of an adapted programme for adolescents based on STEPPS.

However, an adolescent STEPPS programme was no more effective at reducing BPD symptoms than TAU. Levels of BPD symptoms were low at baseline leaving little room for
improvement. These low levels of BPD symptoms suggest the participants may not have actually needed treatment. There were higher levels of drop-out in the STEPPS group; group processes may have played a role in this. This study measured different variables to the other studies reviewed and therefore it is difficult to compare these results across studies. The authors had to develop their own BPD assessments as there is a lack of high quality assessments for BPD in adolescents. Further work is needed in this area before firm conclusions can be drawn on the effectiveness of STEPPS for adolescents.

Implications and general limitations of the current evidence

It is hard to determine the effectiveness of the STEPPS programme as the different studies report findings on outcome measures of different phenomena. Studies include measures of one or more of the following outcomes: BPD symptoms, affect, suicide and self-harm behaviour, impulsivity, internal locus of control, perceived control over emotions, patient satisfaction, and more. Services, therapists, researchers, and clients will have differing perspectives over which outcome is important. This leads to a confusing picture over the effectiveness of the STEPPS programme.

Overall, there is some evidence for the effectiveness of the STEPPS programme in reducing BPD symptoms and improving affect. As STEPPS is adjunctive to any other ongoing treatment it can be viewed as "value added" (Black et al., 2004). The systems component may account for more positive responses to finishing the course than studies of other therapies have found (Blum et al., 2008; Schulte-Herbrüggen, Koerting and Roepke, 2008).

More research is needed in this area before firm conclusions about the effectiveness of the programme can be drawn. There are still few studies in this area and a lack of well-controlled RCTs. Only one study reviewed wasn't written and conducted by the team who developed the programme. This is a potential source of bias as those who developed the
programme have an interest in it doing well. The same authors sell the STEPPS manual and
provide training in STEPPS so need evidence in support of the programme in order to profit
from it. Impartial research by people not connected to the programme is needed.

Only one study didn't find a reduction in BPD symptoms for participants in the
STEPPS programme compared to controls (Schuppert et al., 2009), this may be because the
programme is effective or it may be due to a publication bias where studies that found
STEPPS not to be effective have not been published.

The adjunctive nature of the programme poses a large problem for researchers; many
participants are receiving individual therapy alongside the programme, the nature of this
individual support may vary between participants and the extent to which the therapist
supports the programme will also vary. These elements could have a large influence on
outcome results. Moreover, it is difficult to ascertain whether the individual therapy is
leading to positive changes or the STEPPS programme even when a TAU group is used as a
control measure, as differences in individual therapy between STEPPS and TAU groups that
cause any differences in outcome cannot be ruled out and are not controlled for. This will
remain a problem that is unlikely to be resolved whilst community samples are used for these
studies.

It could be that group processes in general account for the positive effects of the
STEPPS programme. Increased social support, better understanding of the disorder and the
normalising effect of the group could all lead to the improvements rather than elements that
are distinctive of STEPPS. To investigate this and ensure it is features of the STEPPS
programme specifically that are helpful, research needs to be done comparing outcomes from
those attending a STEPPS programme with those attending a support group or another
comparable group for 20 weeks.
Furthermore, group dynamics will vary across groups, this means there is variation in all the samples used in the studies above and they cannot be viewed as homogenous samples. Statistical analysis of the results should control for which group participants were in to be sure one wasn’t particularly more or less effective than others, thus skewing the results. A further problem with the analysis of the results is that the RCTs used ANOVA to analyse the results. ANOVA assumes that all data points are independent from each other which is not true for group therapy as one person’s experience and outcome will be affected by other members of the group.

Few men and people from ethnic minority backgrounds were in the samples studied, reducing the generalisability of the findings. This is mainly due to the opportunistic nature of the recruitment for studies as they were all drawn from people using mental health services. It may be the samples are representative of the wider community mental health services in the areas studied and may reflect a general under representation of men and people from ethnic minority backgrounds in services. In order to generalise the results to a wider population studies in different communities and cultures need to be conducted.

All studies report high discontinuation rates. This is a common problem in this client group and mental health research in general. It is positive that research has started investigating the factors affecting discontinuation and outcome (Black et al., 2009) and further work is needed to fully understand the factors involved. Programmes need to be aware of the potential for discontinuation and should be creative and innovative in finding ways to reduce this and improve outcomes for all.

None of the studies report significant reductions in suicide attempts and threats or self-harm behaviours. Suicide and self-harm are very common in this population, cause severe harm to patients and families, and place a large burden on services; reducing these should be a priority for services (NICE, 2009). There is good evidence for the use of DBT
with those people with a diagnosis of BPD who self-harm frequently and dangerously (NICE, 2009). It may be helpful to evaluate which type of intervention is most helpful for which symptom of BPD so that services can be developed to provide the most effective care for the most people in a cost-effective manner. Although STEPPS is not designed to be pitched against another therapy, and there are reasons why this is not advisable (Silk, 2008), it may be helpful for services to have this information in order to pick the therapies that best suit each individual client.

NICE (2009) have highlighted recommendations for future research on treatments for BPD. Some of these can be applied to research on the effectiveness of the STEPPS programme. Firstly, NICE (2009) recommend development of an agreed set of outcome measures that allow comparison across studies and the development of evidence-based treatments. These outcome measures should be validated in order to ensure they accurately reflect patient experience. Secondly, RCTs should be conducted of at least 18 months in duration to ensure any benefits are maintained. RCTs should also include indications of cost-effectiveness. Thirdly, NICE (2009) highlight the importance of research on psychosocial interventions in this area; STEPPS has a psychosocial element in the involvement of friends and family members and the focus on relationship skills training.

Does STEPPS meet NICE recommendations?

NICE (2009) guidance specifies key priorities in providing support for people with a diagnosis of BPD. If the STEPPS programme is provided widely by services, it should meet these priorities.

- Access to services

STEPPS provides access to services as it is a relatively brief, group intervention that all mental health staff can be trained in cost-effectively and easily. This enables more provision for people with a diagnosis of BPD that may otherwise not be able to receive
support due to the lack of resources for individual therapy among community mental health teams.

- Autonomy and Choice
  
The evidence suggests the STEPPS programme is acceptable for clients. People can choose whether to attend or not and there is detailed information about the course that is easily available to service users.

- Developing an optimistic and trusting relationship
  
  This may not be as easy to develop in a group setting but it is possible to develop a good relationship with the facilitator and the other members of the group; this will depend on interpersonal factors.

- Managing endings and supporting transitions
  
  Participants in the programme are prepared for the ending via the course material. The inclusion of friends and family members may make the ending and transition easier (Blum et al., 2008). Participants can also choose to complete a follow-on programme STAIRWAYS which is less regular and provides a more gradual transition (Black et al., 2004).

- Involving families and carers (with the patient’s permission)
  
  Involving friends and family members is an integral part of the programme.

- Explaining assessment and diagnosis clearly
  
  Psycho-education about the diagnosis of BPD makes up a large part of the programme especially in the early sessions (Black et al., 2004; Blum et al., 2004).

- Managing self-harm and attempted suicide
  
  The programme contains an element on behaviour management skills which includes sessions on managing destructive behaviour including self-harm and suicide (Black et al., 2004). There is little evidence of the effectiveness of the STEPPS programme in reducing self-harm and suicidal behaviour.
• Training for staff (including good supervision provision)

It is relatively quick and easy to train staff in the programme (Black et al., 2004). It is unclear how much supervision is provided to facilitators.

• Monitoring the effect of treatment

The programme includes regular self-monitoring using diary sheets and the BEST test (Blum et al., 2002; Black et al., 2004).

NICE (2009) recommends treatments are “complex”; STEPPS meets this recommendation as it comprises several elements including skills training, CBT and a systems component. STEPPS meets the NICE (2009) guideline of being over 3 months long.

CONCLUSION

There is growing evidence for the effectiveness of the STEPPS programme in reducing symptoms of BPD and improving affect. There is little evidence of the effectiveness of the programme in reducing suicide and self-harm behaviours and this is an important aspect of any intervention for BPD. Further research is needed to address the short-comings of research to date and to further clarify the effectiveness of the STEPPS programme. This research should be carried out by researchers who are independent of the team who developed the programme in order to remove potential bias. Further work should be done comparing the STEPPS programme with other group programmes. Further research should include more men and people from ethnic minority backgrounds.

Evidence suggests STEPPS can be adapted for a variety of clients and settings. Evidence to date suggests STEPPS is compatible with most of the NICE (2009) priorities. The STEPPS programme may be popular with services due to its relatively brief, easy to deliver, format that is available to several service users at once. Research suggests the programme is acceptable for service users and staff.
REFLECTIONS

I have learnt about the STEPPS programme, its aims and potential benefits. This will help me to support my clients who are attending the programme concurrently with individual work or who have already completed the programme. I have also learnt the importance of looking at potential treatments in depth rather than accepting that a treatment is effective. Some treatments such as the STEPPS programme have a small evidence base and therefore should be monitored closely and audited at a local level rather than accepted outright. I will need to consider that the current evidence is derived from mainly white American or British, female samples, STEPPS may not be as effective for men or people from other ethnic backgrounds.

The evidence contradicts previous views that BPD can’t be treated and this helps me to have a positive attitude to working with this client group. It has been useful for me to look at the NICE guidance in this area to see the need for further research and to understand the key priorities in any work with this client group. I will endeavour to apply the NICE (2009) principles to my practice.

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Problem-Based Learning Reflective Account

Year 1

March 2011

2491 Words
In this account I will describe the problem-based learning (PBL) task, my reflections on it at the time and looking back. I have written the events chronologically with learning, reflections and applications in italics after each part.

When we were told we had a problem-based learning task entitled “Relationship to change”, I was uncertain as to what to expect. I read the article we were given fervently that night looking for some answers on how to approach the task. Unfortunately this did not give me the answers I was looking for and this uncertainty was uncomfortable. However, as so much was new and uncertain at this time, this was not unusual and I decided to accept it in the hope all would become clear. I met the other six people in my group the next day. I was expecting our facilitator to take the lead but she explained that she would not be doing this, the task was deliberately broad, and it would develop over the course of our sessions. I felt my anxiety rising, although it stayed at a manageable level and I was surprised it was not worse. Some members of the group were more anxious than I was and this helped me stay calm. I fell into a calm, level-headed role, saying that we had plenty of time. This calmness surprised me as in my personal life I am the “worrier” and my husband is the calm one.

Since this task my supervisor has said to me that I am a calm presence and I seem unfazed by tasks asked of me. I think the experience of the PBL task helped me to see that remaining calm and assured that things would work out is a useful strategy. I am pleased I am able to stay calm professionally and I aim to take this strategy forwards. Of course I become anxious at times, but the more experiences I have of everything going well, the less anxious I become about situations. I think it is helpful for the efficacy of the group for members to stay calm.

In the first session we reflected on our own experiences of change in order to look for some themes and issues. It was interesting to hear other people’s journeys to getting onto the course and our facilitator reflected on how resourceful we had all been. This was comforting
as many of us spoke about how we were experiencing self-doubt, thinking others were better than us and we didn’t really deserve to be there. I was thinking there must be a mistake, that I was the odd one out, that I would be found out. It was such a relief to know I wasn’t the only one thinking this. I was grateful to other members of the group for airing this doubt as it meant I felt safe to air my doubts as well.

This early sharing of experience and fears helped us to draw closer as a group and helped us to develop an understanding of each other. I think this initial discussion broke down some barriers and enabled us to work together better by reducing the initial shyness. I think this worked well because the sharing was mutual and we all felt on an equal level with each other. Openness and sharing of information is characteristic of groups which are functioning well (Tuckman, 1965).

This is different from the relationships we have with clients because we ask so much about them, we expect them to share their most personal experiences with us, and yet they know very little about us. It made me realise how scary that must be for clients. I know I only felt safe to share my thoughts and feelings because everyone was and because some of them had already been voiced. This led me to try to put clients at ease and to indicate that it is ok to express difficult feelings by giving some examples and naming difficult emotions. It is my hope that by articulating these things myself, the client may then feel safe to discuss them.

In the second session we discussed themes emerging from our own experiences. It felt we were already working well as a group, the discussion seemed to be shared equally and no one person took charge which helped us all feel safe to contribute. There was still some anxiety within the group as to what the presentation was going to be on and a desire to put some structure in place. This helped to keep us focussed on the task but it also had the disadvantage of stifling more exploratory discussion. We found this a difficult balance to
strike. In retrospect I think we could have spent more time exploring the ideas further and reflecting on the application of these ideas.

This desire to get the task done quickly can happen when working with clients if there are time or service pressures, or pressures from the clients to get quick results. I have learnt from this experience that there needs to be plenty of space for clients to explain and explore ideas in the early stages before work becomes too focussed. It is helpful to consider this when working in teams, such as within the multi-disciplinary team involved in a client’s care. Team reflexivity has been found to improve decision making (van Ginkel, Tindale, and van Knippenberg, 2009) but so often service pressures call for quick decision making leaving no space for reflection. I have learnt from this experience that space for reflection is important and I aim to promote this when working within a group or team.

We reflected on change as a process versus change as having discrete stages. It seemed more intuitive to us to view change as a process (Fischer, 2003), as stage models of change (e.g. Protraska, 1992) seemed too arbitrary and our experience did not fit easily into stages.

Recently I have been working with a client who has anorexia. She is very keen to see change in big steps, she expects things to change quickly and overnight otherwise it means she has failed. Having learnt about change as a process, I am trying to work with her to view change as gradual that may happen slowly and therefore be harder to recognise each day but when she looks back in a few weeks or months she will be able to recognise the progress she made.

After the second session I was still surprised at how calm I was and how much I was enjoying working in this different way. I don’t usually enjoy group work, in the past I would rather just do it all myself, perhaps because I like to be in control. This time was different; I enjoyed learning from the others in the group and the mutual sharing of experience. I liked
the fact that everyone was respectful and we seemed to all be equal. At this point my only concern was that I didn’t have enough to do between sessions; I wanted to make sure I was “pulling my weight” and I wanted to feel like a useful and helpful member of the group.

I tend to have a need to feel helpful and I sometimes find it difficult when clients are stuck or don’t seem to find our sessions useful. I worry about doing a good enough job, and I can have a tendency to want to “fix” things. I know I need to work on being able to let this go, to be able to say to myself “you did your best” and accept that sometimes we can’t help people, it’s not the right time, or the situation is beyond anyone’s control. Reflecting on this task has helped me realise this and I will take this to supervision as part of my development.

This positive experience of working in a group will help me in my future work within a multi-disciplinary team as it helped me to see the benefit of learning from others and the different contributions people have to offer. I will remember that mutual respect and everyone feeling equal seemed to be important and I will endeavour to foster this in the teams I work in. Power imbalances and a search to establish a hierarchy are common in groups but need to be overcome in order to be more effective (Tuckman, 1965). A sense of group interdependence and a realisation that each member has their own important part to play improves efficiency of the group (Alavi and McCormick, 2008).

We began to develop a structure for our presentation. One group member brought in diagram of her own journey. This was a tool she had used in her previous work and it was useful to see it applied to her experience. We decided to call our presentation “The Journey of Change” and we applied theory to the group member’s journey.

I focussed on the factors affecting change, related them to the group member’s journey and also related these to the client’s we may see. The factors that seemed most important in bringing about change were: the occurrence of a focal or crisis event, presence of social support, an attribution of internal control/high self-efficacy, a need to create a new
sense of identity, and a change in environment (Heatherton and Nicholls, 1994; Bandura, 1982).

I found it helpful to consider what factors enable change and how to relate these to my clients. The most important aspect to me was fostering a sense of self-efficacy and I try to help my clients to develop this. It is important to assess clients' resources and self-efficacy and help them to determine what they have control over in order to help them facilitate change (Heatherton and Nicholls, 1994; Bandura, 1982). Developing self-efficacy can also help instil hope in the client that they can change. All the people I have worked with so far have experienced severe difficulties, many for a long time. These experiences have lowered their self-confidence and their beliefs about their ability to change. I observed this in a client with borderline personality disorder who has developed schema about herself as defective and worthless. She does not believe she can change or that things can change in her life. This means she sees no point in trying to make changes as she does not believe they can happen. Our work together is currently focussing on helping her to recognise the changes she has made and the areas of her life where she feels she has been successful, such as starting to teach children horse-riding. I am trying to help her to foster some sense of self-efficacy so she feels able to bring about the changes she wants.

I was surprised that I was more nervous than usual on the day of the presentation. I felt pressure to perform well for the rest of the group as we were marked as a whole and I didn't want to let them down. I also felt nervous because we had only been on the course six weeks so I hadn't got to know the cohort very well. My nerves got worse as we waited to do our presentation because the groups before us were really good and I couldn't help comparing our presentation to theirs. Some people used role play which made their presentation livelier than ours and I worried people would think ours was dull. Thankfully the presentation went well and we received positive feedback.
The presentation demonstrated to me that it is possible to feel nervous and still do a good enough job. I think it was helpful to go through this as I often ask clients to put themselves in situations they find anxiety provoking. This experience helped me to empathise more easily with clients facing situations that make them anxious. For example, I could relate how I felt to a client experiencing social anxiety around occasions such as parties where he worries that people will be judging him. It was useful to consider my experience whilst asking him to face the situations he was avoiding as I was able to understand some of the feelings this evoked for him.

I find it difficult to speak in front of groups especially if I do not know them well. For example, on placement I attend team business meetings, psychology meetings and supervision groups and I get nervous about speaking. This experience has helped me to recognise this is something I need to work on. I need to build my confidence in speaking in large groups and I am making myself speak so that this gradually becomes easier. I have learnt from this experience that things usually go better than I fear and I am trying to apply this to other settings.

I have found this exercise useful in demonstrating to me that I can remain calm and enjoy new ways of learning and working with others. I had not related my own experience so closely to clients before and I have found I learn well by doing this. Because the task was so broad, and we had the opportunity to explore different aspects as a group, I was able to have space to reflect and learn about myself, to identify a strength that surprised me and to identify areas for my own development. Our group approach seemed to be effective in accomplishing the task and in enabling us to become close as a group. The disadvantage of our approach is we were perhaps too task-orientated at times, not allowing more time for exploration and reflection of ideas.
Our presentation conclusion was "change is a subjective, on-going process. Everyone has their own journey. Reflecting on this can help us be more open, aware and attentive to the factors affecting the process of change for others" and I found relating this to myself and my work has been very beneficial.

REFERENCES


Problem-Based Learning Reflective Account

Year 2

February 2012

2485 Words
For this year's problem-based learning task we were given a complex scenario involving two parents with learning disabilities, Mr and Mrs Stride, whose twin daughters had been placed in foster care. The local authority was now looking to have the children adopted whereas the parents wanted the children to be returned to them. There were many professionals involved and we were told we had been asked by the children’s guardian to conduct a full risk assessment and, if appropriate, develop a rehabilitation plan.

When our group first read and discussed the information we were struck by the complexity of the “problem”. We were unsure as to where to start and we all commented on the sense of confusion and the complicatedness of the situation. We spoke about how many different professionals were involved and the impact this may have had on the parents. We wanted to develop a role-play that would portray this sense of confusion and complexity. The first session felt a little overwhelming as we had lots of interesting and creative ideas for a role play but I struggled to see how we would turn all of these into a cohesive presentation.

We decided that each of us would play a different professional or person involved in the case. I was given the role of the grandparents, who wanted to be assessed as carers for the children. We elected one of the group members to play the psychologist who would link everything together and bring in some research and theory on the issues involved. Our initial idea was to have lots of pieces of string which would link the many different people involved and this would get tied in tangles and knots and convey the complexity of the situation.

Next we identified all the issues that could be highlighted during our role-play. We developed a list of over ten potential issues to discuss. This demonstrated to us the enormity of the “problem” and the difficulty in trying to resolve such a situation. We decided to pick three issues which seemed most relevant or interesting to us.

By the end of our first session we already had a good idea of what the presentation would look like although the fine detail needed to be ironed out. This felt challenging as there
was a lot to achieve in a short space of time but it also felt good to have a concrete idea so soon. Later, I felt this was perhaps a limitation to how we approached it as we did not allow ourselves time to explore and reflect on the problem; instead we immediately focussed on how we could do the presentation. This may have meant that we ignored potentially interesting issues.

Over the next few sessions we chose the key issues which seemed most important to us. These were risk, learning disability and parenting, and social exclusion and poverty. We decided the psychologist would introduce and summarise each issue and each person involved would then add their thoughts. We began to practice and by the third session we had a rough script for the role-play. We were struggling to fit in how we would include the string and “getting tied in knots” idea but we still wanted to convey something of the problem visually. We then had the idea of using cardboard boxes with different issues written on them to build a wall in front of Mr and Mrs Stride. This showed that the conversations were going on around them not with them and we felt the professionals were losing sight of the person behind “the problem”. It also showed the barriers such as blame, stigma and prejudice that prevented Mr and Mrs Stride from receiving the support they needed.

I felt overwhelmed by the nature of the problem. I felt I didn’t know where to start and how a resolution could be reached. It was interesting portraying the many different perspectives involved as I could see where everybody was coming from and how they had reached their position but at the same time some of the positions were challenging to my own beliefs. After consideration, I still have the opinion that people with learning disabilities should be given help to keep their children and that they can be “good enough” parents. However, now I can see the difficult position professionals especially social workers are placed in in such cases and I can see that unfortunately situations are not clear cut. I became aware of some of my own prejudices, mainly towards other professionals and this made me
uncomfortable. I think this was a helpful exercise in highlighting and challenging my
predisposes and this will help me work more collaboratively with other professionals in future.

In the role-play I took the role of the grandparents. For this I looked up information
on grandparents looking after their grandchildren and I was surprised to find how common
this is and how difficult this can be for them. Some of the videos I watched where
grandparents shared their experiences were really poignant and I felt sad and moved watching
them. This helped me to take the perspective of people older than me with different life
experiences. In the role-play the grandparents did not approve of Mrs Stride and argued they
would be better carers for the children. This was a difficult perspective to take and I made
comments that I didn’t agree with. I found this awkward and I wanted to come out of
character and say "I don’t mean it". I found this difficult to manage but it did highlight to me
that there are many perspectives on a situation.

Quite soon into the task I told the group that I was pregnant and would be leaving in
March. I found this a tough announcement to make as I felt sad to be leaving them and I felt I
was abandoning the group. I also was very excited about my news so I had conflicting
emotions. The group responded in a similar way, they were all excited and pleased for me but
also said how sad they would be not to have me in the group. This gave the task an added
dimension as it was the last time we would be working together in such a way and I felt
unhappy about this. I felt we had spent a long time developing positive relationships within
the group and it felt a shame not to be seeing these through.

My pregnancy also affected how I approached the task. As I was about to become a
mother I was beginning to learn what it feels like to love a child. I felt a connection to the
parents in the “problem” that I would not have felt otherwise. I was already beginning to
imagine seeing my baby grow and develop and to imagine all I might do for him or her. This
highlighted to me how distressing it must have been for Mr and Mrs Stride to have had their
children taken into care and to be told they are bad parents. This gave a sense of poignancy to the task for me and I felt compassion for the Strides. Although this helped me connect with the task, it also highlighted to me the need to use our own experiences safely, to reflect on these and acknowledge where the feelings come from. I could see that if this had been a real case of mine, these feelings may have clouded my judgement. I will take this knowledge with me when working with clients with whom I feel a connection or resonance.

The group worked very differently on this problem than we did last year. Last year we were very task focussed and we were very anxious to have the “right” presentation. As a consequence we focussed on developing a power-point presentation incorporating theory. This year we were adamant we wanted to do something more creative and we were less theory focussed and engaged with the problem in a deeper way. I think this was because we have evolved as a group; we could now tolerate a certain degree of uncertainty as we felt safe with each other. We felt more adventurous and creative and I felt the group allowed each member to draw on their strengths more. It felt we had reached the “performing” stage of group formation (Tuckman, 1965). I felt we were working as a team, depending on each other and using each other for support.

We did not always focus on the task, one session in particular was spent discussing and supporting each other around another aspect of the training which some of the group were struggling with. Although this demonstrated the way people felt safe and able to use the group for support, it also demonstrated the limitations of working within a group who know each other well. That is we strayed from the task and needed re-focussing in order to get it all done. Without the structure of a chair, and often without a facilitator, we found we were all talking at once, coming up with lots of different ideas and also going off topic. To this end we elected a “puller-inner” who would keep an eye on time and encourage the group to refocus if necessary. This system worked well and helped us to stay on track.
At one point the person playing the psychologist in the role play had more to do than others and she seemed to take on the role of provider for the group and the rest of us happily fell into this pattern. A couple of sessions later we were able to identify this as a group and discuss it. This honesty helped us acknowledge the problem and helped us work together more, taking the burden off this one person. This is a further example of how the group has developed, feeling comfortable enough to tackle a difficult situation without blame or conflict.

I have learnt the value of working in a group that know each other well, feel safe with each other and trust one another. A group can promote more creativity (Rose, 2001) especially when tackling a task which does not have a simple solution (Blair, 1991) and I found that to be the case. I can apply this learning to my clinical work when I am asked to work as part of a multidisciplinary team, in supervision groups, or when working with a team. I have learnt the value of good relationships within a group and I will try and encourage these in the groups I work in. This could be done by socialising as a group away from the task, spending time within the group getting to know each other, and trying to ensure consistency of group members.

We were struck by the need for a containing space. We found we felt safer and worked better when we were in the same room. We joked about this at first as it felt quite insignificant but upon reflection it felt the surroundings were important. This reminded me of the psychodynamic ideas around providing a secure frame for the client in order to help them feel safe and contained (Winnicott, 1971; Lemma, 2003). I had not recognised the insecurity a lack of consistency can bring before and the changing of rooms really highlighted this to me. I have learnt that a small thing can make a big difference and I plan to try and ensure consistency of rooms for my clients and any groups I work in as well.
This task highlighted the complexity of situations we can face in clinical practice. I was struck by how problem-focused the material was. I was reminded that it is our role as psychologists to try and see beyond the “problem”, to look at the context and the potential strengths and resources people have available to them. This task taught me the importance of trying to hold multiple perspectives in mind when facing an issue. I have begun to do this on my current older people placement. As part of my placement I have worked with the Challenging Behaviour Service who work with clients in residential and nursing homes. In this work I have had to consider the perspectives of the staff, the client, the other residents and other professionals, such as psychiatrists and GPs. I have applied my learning from this task when trying to do this. It has helped not to see only the “problem” but rather to consider what the client may be trying to communicate and I have tried to learn more about them and their lives before they were in a care home. The visual impact of building our cardboard box wall in front of Mr and Mrs Stride was a strong reminder to me not to lose sight of the person behind the “problem” and I have tried to remember this in my work on this placement. It was also helpful for my current placement for me to play the grandparents as I was able to try and take the perspective of an older person and adjust my thinking accordingly.

The task highlighted the over-emphasis on risk that can happen when considering parents with learning disabilities. We reflected as a group on how our professional culture, and society as a whole, is very risk-averse following some recent high profile cases. Whilst we could see the necessity to consider risk and to protect children from abuse, we found ourselves thinking about how this risk-averse culture and professional fear of recrimination impact on those we are supposed to help. It highlighted our desire as professionals to protect ourselves and shift blame rather than approaching a situation as a team.

I am reminded of this blame and anti-risk culture in team meetings at my current placement. Often discussions revolve around what the client needs and how this is not being
provided. The professionals involved often blame social services for this and there is an "anti-social services" rhetoric. Often the conclusion is reached that the team needs to put in writing their opinion and what they have done in order to protect themselves if something goes wrong. This task has showed me how unhelpful such a position can be and how a more collaborative, less blaming, more strengths focussed approach may be helpful in these situations.

I enjoyed this task and feel I learnt a lot about managing complex cases both personally and professionally.

REFERENCES


Tuckman, B. W. (1965) Developmental sequence in small groups. Psychological Bulletin, 63, 384-399

PERSONAL AND PROFESSIONAL LEARNING DISCUSSION GROUP PROCESS
ACCOUNT

Summary

In this account I describe my experience of my personal and professional learning discussion group (PPLDG). The group met for approximately 17 sessions within the first academic year. I first describe the tasks and focus of the group including what I learnt from them. I then discuss the development of the group and the strengths and weaknesses of the approach we took. I then reflect on my experience and development within the group and the links between this and my professional development. I found the PPLDG group a useful and insightful process. I have learnt from experience how a group develops from seven strangers at the beginning of the year to a close-knit team at the end. I have learnt that I can have a valuable role within a group and my confidence has grown about being in groups. I can apply this learning to my clinical work, especially when working within a team.

PERSONAL AND PROFESSIONAL LEARNING DISCUSSION GROUP PROCESS
ACCOUNT – SECOND YEAR

Summary

In this account I describe my experience with two PPLDG groups. My experience of personal and professional learning discussion groups (PPLDG) has been unusual. Half way through my second year I took a year out on maternity leave after which I joined another cohort. I therefore finished one group early and then joined another pre-formed group. This was an interesting process which held challenges for me and has taught me a great deal. I describe the ending and starting processes in this account. I learnt about the value of taking risks and the differences between different groups.
OVERVIEW OF THREE YEARS OF PLACEMENTS

Year 1 – Adult Mental Health; Community Mental Health Team and Inpatient Unit
(1/2 a day per week), October 2010 – September 2011
- Conducted psychological assessments autonomously and in liaison with other members of the multidisciplinary team
- Developed collaborative formulations of a wide range of difficulties using a wide range of therapeutic models including CBT and psychodynamic
- Delivered individual psychological therapy using CBT, psychodynamic and behavioural principles
- Co-facilitated an anger management group in the CMHT and a WRAP group at Langley Green
- Delivered training on debriefing and defusing after serious incidents to staff team
- Conducted neuropsychological assessments using the ACE-R; WAIS-IV; and WMS-IV
- Conducted an audit of the provision of NICE-recommended treatments for psychosis and presented the findings to the team

Year 2 – Older People’s Mental Health, Older People’s Community Mental Health Team, October 2011 – March 2012
- Conducted psychological assessments and developed formulations of a wide range of difficulties using CBT and systemic models
- Delivered individual CBT interventions
- Conducted neuropsychological assessments to inform multidisciplinary diagnosis of dementia using a large battery of neuropsychological tests including WAIS-III; WAIS-IV and WMS-III
- Delivered a cognitive stimulation group for people with dementia and their carers
- Delivered training on the ACE-R for staff team
Maternity leave – April 2012 – April 2013

Year 2 – Child and Adolescent Mental Health; CAMHS and Child Development Team,
April 2013 – September 2013
- Conducted psychological assessments autonomously and in liaison with other members of the multi-disciplinary team, families and schools.
- Developed formulations collaboratively using language appropriate to the developmental level of the child/young person
- Delivered individual psychological therapy with young people using CBT, compassion-focused therapy, mindfulness, and behavioural principles
- Delivered interventions with family members in order to support them alongside the child/young person
- Delivered training to other members of the multi-disciplinary team on CBT techniques and how to adapt them to young people
- Conducted autism assessments that included the WISC or WPPSI, NEPSY, social cognition battery, play observations, interviews with the child and parents
- Conducted school observations
- Made a safeguarding referral and liaised with other agencies to manage risk

Year 3 – Specialist Placement, Research and Development Department, September 2013 – March 2014
- Worked on setting up an OCD clinic jointly between the R&D department and Health in Mind
- As part of this I conducted routine assessments of OCD jointly with a CBT therapist
- I developed and piloted a group for the friends and family of people with OCD
- Co-facilitated a 12 week ERP group for people with OCD
- Developed the SPSS database for the clinic
- Lead meetings around the clinic
- Developed leaflets for use in the clinic
- Developed a protocol for use at Step 2 for OCD and provided training for the Psychological Wellbeing Practitioners on OCD
- Conducted assessments as part of the Mindfulness for Voices (M4V) trial and attended steering group meetings around this trial

**Year 3 – Learning Disability, Community Learning Disability Team – Challenging Behaviour, April 2014 – August 2014**

- The service provides support for people exhibiting challenging behaviour across West Sussex
- Conducted a full functional assessment for one client jointly with a behaviour support practitioner
- Shadowed Speech and Language therapist and OT
- Conducted individual therapeutic work with clients
- Conducted assessments for the SOTSEC sex offender group
- Used the WAIS-IV to assess I.Q. and strengths and weaknesses for one client
- Conducted a dementia assessment with a client with Downs Syndrome
- Used systemic ideas to conduct work with families
- Liaised with many different people involved including care managers, service providers, support workers, families, psychologists, behaviour practitioners, OT, SALT, nurses, and social workers.
- Delivered teaching on understanding WAIS reports to social workers.
An audit of the provision of NICE recommended psychological therapy for schizophrenia within a Community Mental Health Team.

Service-Related Research Project

Year 1

June 2011

Main text - 2987 words
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Abstract

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Appendix 1 – Audit tool
ABSTRACT

NICE (2009) guidelines for schizophrenia recommend CBT for psychosis and family therapy. The provision of these treatments by a local community mental health team (CMHT) was audited. 55 clients with a diagnosis of schizophrenia or related conditions were identified. The records of these clients were then reviewed using case notes and electronic records. The number offered a NICE (2009) recommended treatment were highlighted. Details of the treatment offered were recorded. In total 5 clients have been offered a NICE (2009) recommended treatment within the past two years. Potential reasons for this include lack of staff training and supervision, client and family factors and service management factors. These factors are discussed and recommendations for improving adherence to NICE (2009) guidelines are made.

ACKNOWLEDGEMENTS

This project was carried out with another trainee under the supervision of Dr Clara Strauss. The administration staff provided help in obtaining the total team caseload estimates. The audit could not have been conducted without their support and the responses of the care co-ordinators and other staff who carry a caseload in the CMHT.

INTRODUCTION

Schizophrenia is a severe and chronic mental health condition that can cause significant impairments to sufferers. Currently schizophrenia accounts for 24% of mental health service provision, with two thirds of that on inpatient care (figures cited in NICE, 2009). Schizophrenia also costs the economy, due to the cost of benefit provision, loss of productivity, housing costs, costs to the criminal justice system, and carer burden (Mangalore & Knapp, 2007). A total of 80% of people receiving treatment for schizophrenia remain unemployed, at considerable personal and economic costs (Mangalore & Knapp, 2007). The total cost in England in 2004/2005 was £6.7 billion (Mangalore & Knapp, 2007).
Consequently there has been a large focus on the provision of effective treatment for the disorder. If effective treatments are implemented this will reduce the economic burden on mental health services as well as reducing distress and improving quality of life for service users and their families. This would be especially beneficial due to the economic pressure on services from cuts in financial provision and a drive to reduce the number of inpatient beds (Mangalore & Knapp, 2007, British Psychological Society, 2000).

There is growing evidence for the effectiveness of CBT in reducing psychotic experiences and the distress and disability they cause (e.g. Kuipers et al., 1997). NICE guidelines (2009) recommend people with a diagnosis of schizophrenia (or related disorders, including schizoaffective disorder, schizophreniform disorder and delusional disorder) are offered at least 16 sessions of CBT for psychosis. They recommend CBT that is manualised and derived specifically for psychotic symptoms (e.g. Chadwick, Birchwood & Trower, 1996). Key components of CBT for psychosis include coping with symptoms, reducing distress, and relapse prevention through the identification of warning signs and triggers (NICE, 2009). Despite strong evidence for the effectiveness of CBT for psychosis in reducing symptoms and preventing relapse, and for the cost-effectiveness of this approach (Kuipers et al., 1997; 1998), some reports have found CBT is not readily available, mostly due to lack of resources and training (British Psychological Society, 2000; Berry & Haddock, 2008).

A family intervention of at least ten sessions is also recommended where people are in close contact with their family (NICE, 2009). Family interventions should have a specific supportive, educational or treatment function and should include problem-solving or crisis management work. The person with schizophrenia should be included if practical and the whole family's preferences should be taken into account (NICE, 2009). There is considerable evidence of the impact of caring for a family member with schizophrenia, including increased stress and relationship breakdown (Fadden, Bebbington & Kuipers, 1987). There is evidence
that family therapy can decrease the incidence of psychotic episodes and increase employment prospects, and these improvements are maintained eight years later (Tarrier & Barrowclough, 1996). Family interventions are also effective in decreasing stress in the other family members (Penn & Mueser, 1996). These interventions are cost-effective and can save services money (Tarrier, Lowson & Barrowclough, 1991). In spite of these benefits family therapy is uncommon in community mental health services (British Psychological Society, 2000; Berry & Haddock, 2008).

A local NHS Trust requested that the provision of CBT and family work for schizophrenia within their services was audited. It was the impression of the service that NICE (2009) guidelines were not being fully implemented. There is increasing pressure on services to comply with NICE guidelines, with the introduction of “Payment by Results” (Department of Health, 2011) and the increase in competition from other providers. It seems possible that NICE guidelines are to become mandatory standards to be achieved and therefore NHS trusts are keen to establish services which can meet these guidelines. In order for the Trust to comply with NICE (2009) guidelines and provide a good service for people with schizophrenia they must first identify the gaps in current service provision. This is the aim of this audit project.

OBJECTIVES

- To identify the current CMHT caseload.
- To identify how many people on the CMHT caseload have a diagnosis of schizophrenia or related conditions.
- To identify how many of those have been offered CBT for psychosis or family therapy and whether the therapy offered meets NICE (2009) criteria.
METHOD

The current caseload of a local CMHT was identified using computer records kept by the service for the date of 1st February 2011.

All care co-ordinators and other staff members who had a caseload in the CMHT were asked to give the auditor a copy of their caseload on February 1st 2011 and to highlight those clients with a diagnosis of schizophrenia, schizo-affective disorder, schizophreniform disorder, delusional disorder, or non-specified psychosis. Eleven out of sixteen members of staff responded (69%).

This project was one of four audits being conducted as part of a broader audit project and an audit tool was developed to be completed for each client together with other auditors. This was developed from the one recommended by NICE (2009). Questions were added to clarify the type of intervention offered and to include recent developments in CBT for psychosis (e.g. including a mindfulness approach). Questions on client demographics were also added. See Appendix 1 for the audit tool used.

Once each client was identified the researchers used paper case notes and the electronic clinical records computer system to complete the audit tool. Any difficulties accessing information were also recorded.

Participants

In total 55 clients with a diagnosis of schizophrenia or a related condition were identified. Table 1 outlines the demographic characteristics of the participants.

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1 For this report I use clients to refer to those who use mental health services as that is the term most commonly used in the service I work in.
Table 1 – Client Demographic characteristics

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<td>Range</td>
<td>1962 – 2011</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>1998</td>
<td></td>
</tr>
<tr>
<td>missing = 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethnicity:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White British</td>
<td>43</td>
<td>78.2%</td>
</tr>
<tr>
<td>Other White Background</td>
<td>4</td>
<td>7.3%</td>
</tr>
<tr>
<td>Chinese</td>
<td>2</td>
<td>3.6%</td>
</tr>
<tr>
<td>Mixed White and Black African</td>
<td>1</td>
<td>1.8%</td>
</tr>
<tr>
<td>Mixed White and Asian</td>
<td>1</td>
<td>1.8%</td>
</tr>
<tr>
<td>Indian</td>
<td>1</td>
<td>1.8%</td>
</tr>
<tr>
<td>Other Asian Background</td>
<td>1</td>
<td>1.8%</td>
</tr>
<tr>
<td>Not Stated</td>
<td>2</td>
<td>3.6%</td>
</tr>
<tr>
<td>Living Arrangements:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>On their own</td>
<td>20</td>
<td>36.3%</td>
</tr>
<tr>
<td>Residential Home</td>
<td>16</td>
<td>29.1%</td>
</tr>
<tr>
<td>With partner/family</td>
<td>13</td>
<td>23.6%</td>
</tr>
<tr>
<td>With parents</td>
<td>2</td>
<td>3.6%</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>5.5%</td>
</tr>
<tr>
<td>Missing</td>
<td>1</td>
<td>1.8%</td>
</tr>
<tr>
<td>Employment Status:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part time – paid</td>
<td>3</td>
<td>5.5%</td>
</tr>
<tr>
<td>Full time – paid (&gt;30 hours/week)</td>
<td>4</td>
<td>7.3%</td>
</tr>
<tr>
<td>Voluntary – part time</td>
<td>6</td>
<td>10.9%</td>
</tr>
<tr>
<td>Voluntary – full time</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Retired</td>
<td>3</td>
<td>5.5%</td>
</tr>
<tr>
<td>Unemployed</td>
<td>37</td>
<td>67.3%</td>
</tr>
<tr>
<td>Missing</td>
<td>2</td>
<td>3.6%</td>
</tr>
<tr>
<td>Receiving Benefits:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>36</td>
<td>65.5%</td>
</tr>
<tr>
<td>No</td>
<td>11</td>
<td>20.0%</td>
</tr>
<tr>
<td>Missing</td>
<td>8</td>
<td>14.5%</td>
</tr>
</tbody>
</table>

Number of inpatient admissions in the last
For some variables there was a large amount of missing data due to difficulties in finding this information in the case notes. Information on education level has not been displayed as information on this was missing for 76% of clients. The majority (80%) of the sample were male. The sample was more ethnically diverse than the general population of the area (96.6% White British, 2001 census). A lower percentage (67%) of clients were unemployed than other estimates (e.g. 80% unemployment estimate, Magalore & Knapp, 2007).

RESULTS

The total number of CMHT clients recorded on the trust electronic system was 940 people on 1/02/2011. This is likely to be an overestimate as clients who had been discharged had not been recorded as such on this system. An alternative estimate of the CMHT caseload was gained from the number of clients seen in the previous two month period which was 450 in December 2010 and January 2011. Of the 11 staff members who provided information on their caseloads, the total number of cases was 347 (36.9% of 940; 77.1% of 450). Out of the 347 cases identified 55 clients had a diagnosis of schizophrenia or a related condition (15.9%).

In total three clients were offered CBT for psychosis between January 2009 and January 2011 (see table 2). Of these two accepted the offer although one dropped out after the first session. Another client had 16 sessions of CBT for psychosis prior to 2009. There was
evidence in case notes of four clients being referred for psychological assessment for CBT but then no further evidence of whether they were seen or not.

Sessions were still on-going for the client who was offered and accepted CBT for psychosis; it was not clear whether this was planned to last at least 16 sessions, eight sessions were documented. This was being delivered by a CPN (community psychiatric nurse) who had further training in CBT for psychosis. It was not clear whether this followed a treatment manual as suggested by NICE (2009) guidelines and supervision arrangements were not clear. Sessions included 3 of the 7 key elements highlighted on the audit tool (see Appendix 1).

In total 26 clients (47.3%) lived with or had close contact with their family. Of these, two were offered family therapy and one accepted it. The family therapy included the client in accordance with NICE (2009) guidelines. Therapy was on-going and it was not clear whether it would last between 3 months and 1 year, four sessions were documented. The therapy seemed to be in accordance with the aspects of NICE guidance highlighted by the audit tool. It was delivered by a CPN undergoing training in family therapy. Supervision arrangements were unclear.

Table 2 – Therapy offered

<table>
<thead>
<tr>
<th>Status</th>
<th>CBT</th>
<th>Family Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offered</td>
<td>3 (5%)</td>
<td>2 (8%)</td>
</tr>
<tr>
<td>Accepted</td>
<td>2 (4%) (1 dropped out after one session)</td>
<td>1 (4%)</td>
</tr>
<tr>
<td>Met NICE guidelines</td>
<td>1 (2%)</td>
<td>1 (4%)</td>
</tr>
<tr>
<td>Delivered by:</td>
<td>CPN</td>
<td>CPN</td>
</tr>
<tr>
<td>Offered and accepted prior to 2009</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Referral documented but no evidence the client was seen</td>
<td>4</td>
<td>-</td>
</tr>
</tbody>
</table>
Other support offered included anxiety management classes, hearing voices groups, art psychotherapy, relapse prevention groups and one-to-one support which may have included CBT techniques but the case notes were unclear.

**DISCUSSION**

The first objective of this study was not achieved as there was no accurate record of the caseload. Estimates were gained but these varied widely and staff said they were unreliable. The administration staff were working to ensure all clients that were discharged from the CMHT were discharged from the computer system and there was a drive to discharge all clients that were not seen in the previous six months. This would ensure that the centralised electronic system held a more accurate estimate of the overall caseload of the team. An accurate overall caseload number is necessary to aid in service planning and future audit.

The second objective of this study was to identify all clients on the caseload with a diagnosis of schizophrenia or a related condition. Again this was not possible as some care co-ordinators did not supply that information within the timeframe of this study. Reliance on busy staff members for this information is problematic as they do not have the time, it is not their priority, and many members of staff are often away from the team office where the auditors were based. A system whereby diagnosis information could be recorded centrally, for example through the electronic system, would facilitate audit as it would bypass the care co-ordinators. There were also clients who did not have a care co-ordinator whose care was overseen by a psychiatrist. Time constraints meant this study was not able to identify these clients. Furthermore, there was no central record of the clients that the psychiatrists were responsible for. A central record of these clients would facilitate audit.

The third objective was to identify how many clients were offered CBT for psychosis or family therapy. 5 clients (9%) were offered a NICE (2009) recommended treatment. This suggests there is a lack of provision of NICE recommended treatments for people with
psychosis. There is strong evidence that these treatments are effective in promoting recovery and reducing relapse. The meant clients were not given all the tools which may have aided their recovery and they were likely to experience more symptoms and greater distress. Their symptoms may have prevented them from working and impaired their quality of life. Families may also have been affected as they had no support with the burden of caring for a person with schizophrenia. At a service level this means clients were more likely to stay on the caseload, more likely to relapse, more likely to experience a crisis and therefore cost the service more in resources.

Several factors could explain the lack of provision of NICE recommended treatments for schizophrenia. Firstly, staff had large caseloads (40 on average) and the demands of case management meant they had a lack of time to provide any therapeutic intervention. Much of the care co-ordinators’ time was spent on crisis intervention, risk management and medication adherence which take priority in the risk-averse climate of NHS settings (Berry & Haddock, 2008). In this climate CBT and family interventions could be seen as a luxury, optional extra by staff (Berry & Haddock, 2008). There were one part-time psychologist, two part-time CBT therapists and two trainee psychologists at the CMHT and therefore there was not the capacity for those clinicians alone to provide NICE recommended treatment for all clients who would benefit from it. Therefore it would be necessary for other clinicians such as trained CPNs to provide some of the therapy.

Secondly, there is a lack of training for staff to develop skills in CBT for psychosis and family therapy (Tarrier, 2005). Research suggests that even those staff who have received some training suffer from self-doubt, fear and a lack of confidence in delivering these interventions for complex clients due to lack of clinical supervision (Berry & Haddock, 2008).
Resistance of clinicians has been found to be a barrier to the provision of psychological interventions for schizophrenia (Spidel, Lecomte & Leclerc, 2006). In the past it was thought that people with psychosis did not respond well to psychological therapy and clinicians may still hold this view. There is also an uncertainty amongst clinicians about which clients would be suitable for CBT or family therapy (Berry & Haddock, 2008).

Furthermore, client factors may be a barrier to the provision of NICE recommended therapy. These include the stigma of receiving psychological support; denial of symptoms; substance misuse; and poor motivation and organisation which hinder successful engagement (Spidel, Lecomte & Leclerc, 2006). Families may also be reluctant to engage due to stigma or family discord (Berry & Haddock, 2008). This study found that not all those offered treatment took up the offer, perhaps due to these factors.

Moreover, there are potential service-level factors which impede the delivery of psychological interventions for people with psychosis. These include the focus on crisis and risk management; insufficient support for clinicians; lack of service structures to facilitate the delivery of interventions; not prioritising psychological interventions; and organising services in such a way that access to families is difficult (Berry & Haddock, 2008).

Limitations

This study was limited by the difficulties in obtaining the required information. This meant not all clients were identified and, for those who were, not all information was obtained. The findings may be an under-estimate of the actual provision of CBT and family therapy if the information was lacking from the clinical records.

This was not an accurate reflection of the whole caseload of the CMHT, only a smaller sample of 347 clients. It may be that those care co-ordinators who were more interested in the provision of NICE recommended treatments for schizophrenia were the ones...
who responded and those care co-ordinators may also be the ones most likely to refer their clients for treatment. The results may therefore be an over-estimate of the current provision.

Finally, this audit looked at the provision of CBT and family therapy in the past two years for clients on the case load on 1/02/2011. It may be that there were clients offered family therapy or CBT in the past two years who were then discharged from the service. It was not possible to identify these clients. A longitudinal audit may capture the provision of family therapy and CBT for psychosis within the CMHT more accurately.

Recommendations

In order to improve the implementation of NICE recommended psychological treatments for schizophrenia and related conditions it is recommended that staff skills are increased through the provision of training and supervision (Tarrier, 2005). Clients should also be involved in this training in order to facilitate links between staff and clients and to improve engagement (Fadden, 2006). Staff should be given more information on which clients are suitable for CBT and family therapy and should be encouraged to refer appropriate clients. Clients should receive more information on NICE (2009) guidelines and evidence-based treatments and should be encouraged to assert their right to treatments. This can be facilitated through developing links with advocacy groups and carer groups (Berry & Haddock, 2008).

Services managers need to allocate time for clinicians to spend delivering NICE recommended interventions and should encourage the provision of psychological interventions (Berry & Haddock, 2008). Service managers need to structure services in ways that facilitate psychological interventions and the inclusion of families where appropriate. This should be considered in the current redesign of secondary care services. A clear referral pathway for CBT for psychosis and family therapy should be developed and referrals should be followed-up by care co-ordinators to ensure that psychological interventions are received.
There is growing evidence that group CBT for psychosis can be as effective as individual CBT (Wykes, Steel, Everitt & Tarrier, 2008). Although not currently recommended by NICE, it may be that group CBT for psychosis provides a way of ensuring greater access to CBT for clients as more clients would be able to be seen by a small number of clinicians.

In order to accurately gauge the need for psychological interventions for psychosis it is recommended that more accurate recording systems are developed and staff are encouraged to keep these up-to-date.

The findings of this study and the recommendations will be fed-back to the service via a meeting with the service manager and a presentation to the team. It is hoped that this will raise awareness of the NICE (2009) guidelines, highlight the need for further provision within the CMHT, give information on who may benefit from CBT and family therapy, and ensure clients who would benefit from CBT for psychosis or family therapy are offered these interventions.

REFERENCES


Tarrier, N. (2005). Cognitive behaviour therapy for schizophrenia – A review of
development, evidence and implementation. *Psychotherapy and Psychosomatics*, 74,
136–144.

Tarrier, N. & Barrowclough, C. (1996). Family interventions in schizophrenia and their long-

484.

schizophrenia: Effect sizes, clinical models, and methodological rigor. *Schizophrenia
Bulletin*, 34, 3, 523-537
# Appendix 1 – Audit tool

<table>
<thead>
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<th>Patient identifier:</th>
<th>Sex:</th>
<th>Age:</th>
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<tbody>
<tr>
<td></td>
<td>□Male</td>
<td></td>
</tr>
<tr>
<td></td>
<td>□Female</td>
<td></td>
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</tbody>
</table>

<table>
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<tr>
<th>Diagnosis category:</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Schizophrenia</td>
</tr>
<tr>
<td>□ Schizophreniform</td>
</tr>
<tr>
<td>□ Schizoaffective disorder</td>
</tr>
<tr>
<td>□ Delusional disorder</td>
</tr>
<tr>
<td>□ Not-specified psychosis</td>
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</table>

Date of first contact with secondary services:

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<tr>
<th>Ethnicity:</th>
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<tr>
<td>A : White</td>
</tr>
<tr>
<td>□ British</td>
</tr>
<tr>
<td>□ Irish</td>
</tr>
<tr>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B : Mixed</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ White and Black Caribbean</td>
</tr>
<tr>
<td>□ White and Black African</td>
</tr>
<tr>
<td>□ White and Asian</td>
</tr>
<tr>
<td>□ Any other mixed background (please write in)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C : Asian or Asian British</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Indian</td>
</tr>
<tr>
<td>□ Pakistani</td>
</tr>
<tr>
<td>□ Bangladeshi</td>
</tr>
<tr>
<td>□ Any other Asian background (please write in)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D : Black or Black British</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Caribbean</td>
</tr>
<tr>
<td>□ African</td>
</tr>
<tr>
<td>□ Any other Black background (please write in)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>E : Chinese or other ethnic group</th>
</tr>
</thead>
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</table>

<table>
<thead>
<tr>
<th>Not stated</th>
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</thead>
<tbody>
<tr>
<td>□ Not stated</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Living Arrangements:</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ On their own</td>
</tr>
<tr>
<td>□ With partner/Family</td>
</tr>
<tr>
<td>□ With parents</td>
</tr>
<tr>
<td>□ Residential home</td>
</tr>
<tr>
<td>□ Other – specify</td>
</tr>
</tbody>
</table>

Employment status:
□Part time - paid
□Full time - paid (>30 hours/week)
□Voluntary - part time
□Voluntary - full time
□Retired
□Unemployed
□Education - part time
□Education - full time

Receiving benefits?
□Yes
□No

Education level:
□No formal education
□GCSE
□Further education (A-levels, NVQ etc.)
□Higher education (degree)
□Postgraduate

Current risk: □Level 1 □Level 2 □Level 3

Number of recent (within 2 years) inpatient admissions:

Total length of admission within the past 2 years (in days):

Additional information:

CBT INTERVENTIONS:

In previous 2 years: Yes No

Was the person offered CBT?

Details of CBT offer.
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Was the offer accepted?</td>
<td></td>
</tr>
<tr>
<td>Give details if not accepted:</td>
<td></td>
</tr>
<tr>
<td>Source of referral? (Did patient ask, suggested by staff member?)</td>
<td></td>
</tr>
<tr>
<td><strong>For those service users who accepted offer of CBT, was it:</strong></td>
<td></td>
</tr>
<tr>
<td>Delivered on a one-to-one basis</td>
<td></td>
</tr>
<tr>
<td>Details of the above:</td>
<td></td>
</tr>
<tr>
<td>Delivered over a minimum of 16 planned sessions?</td>
<td></td>
</tr>
<tr>
<td>Details of the above:</td>
<td></td>
</tr>
<tr>
<td>How many sessions in total to date?</td>
<td></td>
</tr>
<tr>
<td>Follow a treatment manual? (specify which)</td>
<td></td>
</tr>
<tr>
<td>Profession of person offering CBT:</td>
<td></td>
</tr>
<tr>
<td>Has the professional had any CBT training/qualifications?</td>
<td></td>
</tr>
</tbody>
</table>
Supervision of the CBT work (evidence of CBT supervision? frequency of supervision? profession/qualifications of the supervisor?)

<table>
<thead>
<tr>
<th>Did it include at least one of the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td>People monitoring their own thoughts, feelings or behaviours with respect to their psychotic symptoms?</td>
</tr>
<tr>
<td>Details:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Promoting alternative ways of coping with target symptoms?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Details:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reducing distress with respect to their psychotic symptoms?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Details:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Improving functioning with respect to their psychotic symptoms?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Details:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Identifying and working with core beliefs or schemas related to distressing psychotic experiences:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Details:</td>
</tr>
</tbody>
</table>
Using mindfulness and acceptance principles and practice as an alternative way of responding to distressing psychotic experiences

Details:

Identifying and evaluating beliefs about psychotic experiences (e.g. beliefs about voice power and control)

Details:

**FAMILY INTERVENTIONS**

<table>
<thead>
<tr>
<th>In past two years:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the person live with, or is the person in close contact with, their family?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If ‘Yes’, were the family offered family intervention?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If the family had family intervention:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did it include the person with psychosis?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If “not” - why?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was it carried out for between 3 months and 1 year?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If “not” - why?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did it include at least 10 planned sessions?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Answer</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>--------</td>
<td></td>
</tr>
<tr>
<td>If &quot;not&quot; - why?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did it take account of the whole family's preference for</td>
<td></td>
<td></td>
</tr>
<tr>
<td>either single or multi-family intervention?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did it take account of the relationship between the main</td>
<td></td>
<td></td>
</tr>
<tr>
<td>carer and the person with psychosis?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did it have a specific supportive, educational or treatment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>function?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did it include negotiated problem solving or crisis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>management work?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Profession of person offering family intervention:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qualifications/training of person/people offering family intervention:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supervision of the family intervention (evidence of family intervention supervision? frequency of supervision? profession/qualifications of the supervisor?)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional information:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
QUALITATIVE RESEARCH PROJECT – MARRIED WOMEN’S VIEWS OF MARRIAGE

Abstract

There is very little research on married women’s views and perceptions of married life. This research focused on unmarried young people, it is unclear what people’s expectations of marriage are once they are married and whether these expectations become more realistic as marriage progresses. Therefore, this exploratory study aimed to provide an account of women’s subjective experiences of marriage. A qualitative approach was chosen as it enabled an exploration of the topic and enabled rich data to be collected. Thematic analysis was chosen as the method as there is no current theory to base the results on and this method is accessible to researchers new to qualitative analysis. The overall research question was: “What are married women’s views of marriage?” To enable an open discussion to take place, the participants were asked to bring and describe an object which represented their marriage. A twenty minute semi-structured interview was conducted with four women. The participants had all been married less than ten years and ranged in age from 21-46 years old. Four themes emerged from the interviews: Symbolism, Unity and Togetherness; Emotions and Memories; and Tradition and Culture.
<table>
<thead>
<tr>
<th></th>
<th>Research Log</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Formulating and testing hypotheses and research questions</td>
</tr>
<tr>
<td>2</td>
<td>Carrying out a structured literature search using information technology and literature search tools</td>
</tr>
<tr>
<td>3</td>
<td>Critically reviewing relevant literature and evaluating research methods</td>
</tr>
<tr>
<td>4</td>
<td>Formulating specific research questions</td>
</tr>
<tr>
<td>5</td>
<td>Writing brief research proposals</td>
</tr>
<tr>
<td>6</td>
<td>Writing detailed research proposals/protocols</td>
</tr>
<tr>
<td>7</td>
<td>Considering issues related to ethical practice in research, including issues of diversity, and structuring plans accordingly</td>
</tr>
<tr>
<td>8</td>
<td>Obtaining approval from a research ethics committee</td>
</tr>
<tr>
<td>9</td>
<td>Obtaining appropriate supervision for research</td>
</tr>
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An Investigation of the Factors Associated with Paranoia in the General Population

By

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ABSTRACT

Paranoia is thought to exist on a continuum with 10-15% of the general population experiencing high levels (e.g. Freeman, 2007). Many different cognitive and affective factors have been linked to the experience of paranoia. These include theory of mind, jumping to conclusions bias, attributional bias, self-esteem, low mood, anxiety and social anxiety. However, there is mixed evidence that each of these factors is related to paranoia. One potential reason for this is that few studies have looked at the inter-relationships between these factors. Some studies have investigated the role of several factors together but most of this research has been done in the clinical population which makes it difficult to isolate paranoia from other clinical symptoms which may have a confounding effect on the findings.

The aim of this study was to contribute to the current understanding of paranoia by determining which factors are uniquely related to the experience of paranoia and the direct and indirect relationships between these factors and paranoia.

151 participants aged between 18 and 70 completed an online survey consisting of measures of paranoia, cognitive and affective theory of mind, attributional bias, jumping to conclusions bias, self-esteem, low mood, generalised anxiety and social anxiety.

Cognitive theory of mind, social anxiety and generalised anxiety were found to predict paranoia. Furthermore, mediation analysis indicated indirect relationships between self-esteem and paranoia, and externalising bias and paranoia, through social anxiety.

The findings build upon previous studies in the clinical population and suggest that social anxiety plays a key role in the experience of paranoia.

INTRODUCTION

Previous studies have linked many factors with the experience of paranoia. Some of these factors can be classified as cognitive; including theory of mind, attributional bias, jumping to conclusions bias, and self-esteem. Affective factors including low mood, social
anxiety and generalised anxiety have also been linked to paranoia. However, the evidence in support of these relationships is mixed and there is little research examining the unique contribution of these factors in the context of the others. This study will look at the relationships between these different factors and paranoia in a sample from the general population.

Firstly a definition of paranoia will be given, followed by a summary of the recent theories of paranoia. Then the evidence linking each cognitive and affective variable with paranoia will be discussed, highlighting the potential methodological and confounding issues affecting the results. The small existing literature synthesising these many different factors will then be discussed and the current models of paranoia highlighted.

**Paranoia**

Paranoia is a term used to describe unfounded or excessive fears about others. Paranoid thinking has two key elements: the belief that *harm* is occurring or is going to occur to the person, and the belief that the persecutor has the *intention* to cause harm (Freeman and Garety, 2000). At a clinical level these fears can become fixed, strongly held beliefs which are termed ‘persecutory delusions’ in the clinical literature. Persecutory delusions are a common symptom of the diagnostic category ‘schizophrenia’ (WHO, 2010).

**Paranoia on a Continuum**

It was once thought that paranoid delusions were distinctly different to the thoughts people have in the general population have. However, it has been suggested that paranoia exists as a continuum (Freeman, 2007; Bebbington et al., 2013). There is considerable support for this theory. Firstly, high levels of paranoia have been found in 10-15% of the general population (Freeman, 2007) with up to a third of people experiencing regular paranoid thoughts (Freeman et al, 2005) and around 45% of people reporting at least one paranoid thought in a virtual reality study (Freeman et al., 2008a). This suggests paranoia is a
common phenomenon in the general population and not unique to clinical groups. Furthermore, delusions and hallucinations as a whole are not confined to a psychotic group of patients but are experienced by people with other mental health disorders and the general population (Eaton, Romanoski, Anthony & Nestadt, 1991; van Os, Hanssen, Bijl & Ravelli, 2000). The risk of developing psychosis is increased by the earlier occurrence of low level symptoms such as mild paranoia and transient hallucinations (Dominguez et al., 2009), suggesting they are manifestations of the same process.

A prediction based on the continuum theory is that low-level psychotic-like experiences, such as non-clinical paranoia, and clinical symptoms, such as persecutory delusions, should be understandable in terms of similar causal factors (Freeman Pugh, Vorontsova, Antley & Slater, 2010). This is known as etiological continuity (Myin-Germeys, Krabbendam & van Os, 2003). Many factors have been linked to the clinical symptom of persecutory delusions and the non-clinical experience of paranoia. These factors include cognitive factors such as theory of mind and reasoning biases and emotional factors such as low mood and social anxiety, although the evidence for these proposed relationships is mixed (Freeman, 2007).

A recent study provided some further support for the dimensional theory of paranoia (Freeman et al., 2010). Participants were drawn from the general and clinical populations and divided into three groups of 30 according to paranoia levels. The groups were defined as low paranoia, non-clinical; high paranoia, non-clinical; and clinical paranoia. The classifications were based on participants’ response to a task in which the participants completed a virtual tube ride and were then asked to describe their fellow passengers. The authors argue this task meant that the paranoid ideas suggested by participants must be unfounded because the avatars’ facial expressions were neutral. They then investigated several proposed factors which have been linked to paranoia in each group. They found a stepped change in levels of
anxiety, worry, interpersonal sensitivity, depression, anomalies of experience, and trauma history between the groups; all factors that have been linked to the experience of paranoia (Freeman et al., 2010). This step-change indicates a dose-response relationship, i.e. the clinical paranoia group had the highest levels of these factors and the highest levels of paranoia and the low paranoia, non-clinical group had the lowest levels. This supports the dimensional theory of paranoia because there were high levels of paranoia in the non-clinical sample and they shared potential causal factors, suggesting clinical and non-clinical paranoia are related experiences (Freeman et al., 2010). Therefore it can be argued that research on paranoia in the general population provides useful information about the experience of paranoia across the whole spectrum.

Cognitive factors related to paranoia

Several cognitive factors have been associated with paranoia including Theory of Mind, reasoning biases and cognitions. This evidence will be outlined below.

Theory of Mind

"Theory of Mind" (ToM), "mentalizing" or "perspective taking" has been described as the everyday ability to attribute thoughts and feelings to others and an understanding of how others' behaviours are motivated by their beliefs, thoughts, feelings and intentions (Abell, Happe and Frith, 2004; Wellman, 1990; Premack and Woodruff, 1978). There is mixed evidence as to whether Theory of Mind deficits are linked to symptoms of paranoia. Some researchers have found Theory of Mind deficits in those experiencing paranoid symptoms of schizophrenia in comparison to non-clinical samples (e.g. Randall et al., 2003; Corcoran, Mercer & Frith, 1995) and across several mental health diagnoses (Corcoran et al., 2008) using a variety of tasks (Champagne-Lavau et al., 2009; Stewart et al., 2009) whilst others have found no deficit (e.g. Langdon et al., 1997; Greig, Bryson & Bell, 2004) or no specific deficit linked to paranoid symptoms (e.g. Langdon et al.,...
Indeed, a review of the literature showed that 50% of studies found a Theory of Mind deficit associated with paranoia (Harrington, Siegert & McClure, 2005).

There are several possible reasons for this variation in results. Firstly, there are some methodological pitfalls when studying the clinical population. Studies tend to group participants according to the predominant symptoms they experience or the presence of certain symptoms such as persecutory delusions, however this means the contributions of other symptoms cannot be ruled out and it may be that some other symptom is linked to theory of mind deficits (Freeman, 2007). For example, theory of mind deficits have been linked to the negative symptoms of schizophrenia in some studies (Langdon et al., 2001), and it could be that the variation in the presence of negative symptoms can explain the variation in findings of a link between paranoia and theory of mind.

To combat the potential confounding effect of other symptoms on the relationship between paranoia and theory of mind some studies have examined the relationship between paranoia and theory of mind in the general population. One study looked at the relationship between Theory of Mind, schizotypy, and persecutory ideation in a sample of 828 students and found no relationship between any of the variables (Femyhough et al., 2008). This study has the advantage of a very large sample size and they included more than one measure of theory of mind and persecutory ideation. However, the student sample may not be generalizable to the population as a whole. Furthermore, a measure of persecutory ideation may not capture more low-level paranoia that may be more common in the general population.

A second methodological issue is that the sample sizes are small for all clinical studies in this area (Harrington et al., 2005; Freeman, 2007) and therefore may be underpowered to detect statistically significant effects and so there is a greater risk of type II error. For example, the studies reviewed by Harrington and colleagues (2005) all had
between 16 and 30 participants with paranoia and so they only had enough power to detect large effects.

Thirdly, there are methodological issues with the measures used to test theory of mind abilities. A number of the studies only used one measure of Theory of Mind which may not have been sensitive enough to pick up subtle effects (Harrington et al., 2005). There are a number of difficulties with the available tests of theory of mind, especially the fact that they rely on stories or other stimuli that do not assess the participant's use of Theory of Mind skills in real-life situations. A large majority also have ceiling effects in adults from the general population (Kaland et al., 2002). Some widely used tests also place high demands on memory and it could be that a memory deficit is the cause of observed Theory of Mind deficits as not all studies have controlled for this (Harrington et al., 2005). Performance on some Theory of Mind tasks seems to be domain-specific i.e. performance varies depending on whether verbal, written, visual or auditory measures are used (Langdon et al., 2001; Mazza et al., 2001). Furthermore, when more than one measure of theory of mind is used there is often no correlation between scores on these measures (Fernyhough et al., 2008) suggesting they are measuring different aspects of theory of mind, or they are not measuring the same construct, or they are not valid and reliable measures. See appendix 7 for a review of theory of mind measures. It is advisable to include at least two measures of theory of mind with the best reliability and validity available (Garety & Freeman, 1999). Issues with the validity and reliability of measures may explain the mixed findings.

Some researchers have suggested there are different types of Theory of Mind deficits. The term "undermentalizing" has been used to describe a lack of a concept of mental states of others (Frith, 1992; 2004; Brune, 2005) and has been linked to the negative symptoms of schizophrenia (Brune, 2005). The term "overmentalizing" has been used to describe the tendency to excessively attribute malevolent intentions to others in ambiguous social
situations (Frith, 1992; 2004) and has been implicated in paranoid symptoms although this has not been consistently shown (Brune, 2005; Montag et al., 2011). It could be that the mixed evidence is due to the lack of clear distinction about the nature of the Theory of Mind deficits.

A final methodological issue is that studies have been unclear about the definition of paranoia used and the definition seems to vary across studies (Freeman, 2007). Some studies have used a very broad definition of paranoia (e.g. Pickup and Frith, 2001) meaning it is more difficult to draw conclusions about relationships between factors.

**Attributional Bias**

An attribution is the reason people give as the cause of an event. An attributional bias is the tendency to explain or make sense of situations in a certain way. For example to attribute the causes of a mistake to your own error, someone else’s actions, or to chance/luck. It seems likely that some kind of attributional processes are behind the experience of paranoid thoughts and beliefs as these involve making judgements about others’ intentions (Bentall, Kinderman and Moutoussis, 2008). Initial research with people with depression highlighted three main dimensions along which attributions can be categorized. The **internality – externality** dimension describes whether someone attributes the cause of a situation to themselves or external causes. The **stability-instability** dimension describes whether the cause is likely to remain the case in the future. The **globalness-specificity** dimension describes whether this cause is just related to the specific situation or to all areas of life (Abramson, Seligman & Teasdale, 1978).

An initial study found people with high levels of paranoia showed an attributional bias towards stable and global causes of events (Kaney and Bentall, 1989). They also found that people with high levels of paranoia made more external attributions for negative events and internal attributions for positive events (Kaney and Bentall, 1989). This can be viewed as a “self-serving” bias as it is protective of self-esteem in the face of negative events (Campbell
Sedikides, 1999). Many studies have attempted to replicate these findings and some have found a “self-serving” attributional style (Fear, Sharp & Healy, 1996) but others have not (Humphreys and Barrowclough, 1996). There are some methodological issues which can help to explain the discrepancy.

Firstly, the definition of paranoia used and the source of participants (from the general or clinical population) have varied. Some studies have found attributional bias in clinical populations but not in people with high levels of paranoia in the general population (Martin and Penn, 2001; McKay, Langdon & Coltheart, 2005). Another study found evidence of attributional bias only in participants with paranoia and grandiose delusions (Jolley et al., 2006) suggesting that the attributional bias found may be related to a factor other than paranoia itself (such as grandiosity or other clinical symptoms).

Secondly, studies have varied in the measures of attributional style used. Many studies used the Attributional Style Questionnaire (ASQ) (Peterson et al., 1982) but this has been widely criticised for poor internal consistency, particularly with the subscale measuring internality (Reivich, 1995). More recently the Internal, Personal and Situational Attributions Questionnaire (IPSAQ) was developed (Kinderman & Bentall, 1996). This has better reliability than the ASQ and allows the distinction between external personal attributions and external situational attributions to be made (Kinderman and Bentall, 1996). This is an important distinction because paranoid thinking is about attributing negative motives to others. Using this scale, one study found that people with paranoia make more external-personal explanations for negative events, meaning they are more likely to blame other people for bad things happening (Kinderman and Bentall, 1996). However, this has not been replicated in further clinical studies (Martin & Penn, 2002; McKay et al., 2005; Randall et al., 2003; Langdon et al., 2013).
Another potential methodological issue is the anecdotal evidence suggesting participants find it difficult to complete attributional style questionnaires (Freeman, 2007). Also studies vary as to who classifies the attribution, the researcher or the participant. Evidence suggests that these different groups come to different conclusions as to the nature of the explanation provided for a situation (Bentall et al., 2008). For example, patients with paranoia often gave attributions for negative events which they classified as external but researchers classified as internal (Kinderman, Taylor, Morley & Bentall, 1992). One study found there was no relationship between attributions on the IPSAQ and paranoia when people with psychosis made the classification of their attributions but there was an association with paranoia and highly external-personal attributions when independent raters, who were blind to any information about the participant, classified the attributions (Martin and Penn, 2002). Therefore it seems that participants may find it difficult to classify their own responses as to whether the cause is due to themselves, others, or the situation and this is a flaw in the current methods of assessing attributional style.

The questionnaires used to measure attributional style do not represent the situations and events that delusions are often focussed on (such as the look on someone’s face or an ambiguous gesture) therefore they may not be a valid measure of the attributions made in paranoia (Freeman, 2007). A more naturalistic design in which participants were able to ask questions about a series of hypothetical events before making their attribution showed that participants tended to ask questions which presupposed a certain cause, for example participants with paranoia were more likely to ask “Was it something I did?” (Merrin, Kinderman and Bentall, 2007). This supports the link between attributional bias and paranoia.

There is an assumption in the literature that attributional style is a stable trait but some evidence suggests that results on tests of attributional style can be modified following a task where the experience of failure is simulated (Bentall and Kaney, 2005). A review of the
literature concluded that people do not consistently show a tendency to make one attribution rather than the other (Bentall et al., 2008). This suggests that context may determine attributional style and attributional processes may be dynamic. This makes it difficult to measure attributions and difficult to draw firm conclusions around cause and effect (Bentall et al., 2008).

Moreover, little is known about the cognitive mechanisms behind attributional bias. It could be that a deficit in the ability to mentalize and attribute mental states to others (poor theory of mind) means that people are more likely to attribute negative motives to other people and they may also be more simplistic in their attributional reasoning. One study supported this hypothesis with the finding that people in the general population with a relative theory of mind deficit were more likely to make external-personal attributions for negative events (Taylor and Kinderman, 1998). The deficits in theory of mind found were only small and within normal limits, so it is difficult to determine whether theory of mind deficits are the mechanism behind the observed link between attributional style and paranoia. Also this study did not find the predicted link between attributional simplicity and paranoia (Taylor and Kinderman, 2002).

Finally, most of the current studies in this area have small samples and therefore may not have enough power to detect small effects or more subtle differences in attributional style.

**Jumping to conclusions bias** Jumping to conclusions bias is the tendency to make decisions more readily, based on less information, than most people, even when an option to collect more information is available (Moore & Sellen, 2006; Garety & Freeman, 1999). There is considerable evidence that people with delusions have a jumping to conclusions bias (Freeman, 2007). This has been established using a probabilistic reasoning task in which participants have to decide which of two hidden jars coloured beads are being drawn from.
They are told that each jar has a proportion of red and blue beads. A bead is drawn and participants can guess which jar it came from or ask for another bead. Participants with delusions repeatedly ask for fewer beads before making a decision about which jar has been chosen than non-clinical controls (Garety & Freeman, 1999). This result has been replicated on many occasions (Freeman, 2007) including in people at high risk of developing psychosis (Broome et al., 2007) and individuals whose delusions have remitted (Moritz and Woodward, 1995), suggesting it is a stable trait. However, these studies focussed on people with all types of delusions and not specifically paranoid ones meaning it is difficult to determine whether jumping to conclusions is a feature of paranoia per se, or a more general feature in delusions, or some other factor such as IQ. One study focussed on persecutory delusions specifically in 28 people with delusions and 30 non-clinical controls. More participants in the delusions group showed a jumping to conclusions bias than controls suggesting that jumping to conclusions bias plays some role in paranoid thinking, but it is not the only factor as 50% of the delusions group did not show the bias (Startup, 2004). In most clinical samples it is likely people with paranoid delusions have other delusional beliefs which may be linked to jumping to conclusions bias. In order to overcome this, studies into paranoid thinking in the general population have been conducted. Some studies have found a relationship between jumping to conclusions and high delusional ideation in non-clinical participants (Colbert and Peters, 2002) but others have not replicated this (Van Dael et al., 2006). One study into jumping to conclusions bias and paranoid thinking in the general population found no relationship (Freeman et al., 2005). It may be that biases in reasoning are more subtle in the non-clinical population and further research in this area is needed (Freeman, 2007).

It has been argued that the beads task is artificial and does not replicate real-life situations in which people may jump to conclusions. However, studies using more naturalistic paradigms, such as the game “20 questions” or asking questions about a negative event, have
also found the link between delusions and jumping to conclusions, suggesting it is not an experimental artefact but a strategy that is used in real-life questioning (John & Dogeson, 1994; Merrin, Kinderman & Bentall, 2007). The jumping to conclusions bias can even be provoked by a stressful situation which has been shown to enhance paranoia (shopping in the Camberwell Road, London; a highly deprived area) (Ellett, Freeman & Garety, 2008).

It may be that when stressed (by the environment) it is advantageous to make snap judgements based on little evidence (jump to conclusions) in order to stay safe and this leads to paranoia. However, it could be that people with paranoia are already looking out for threat and are therefore more likely to jump to conclusions in a difficult environment. A recent study found a link between state anxiety, jumping to conclusions bias, and paranoia, with jumping to conclusions bias mediating the link between anxiety and paranoia, suggesting feeling anxious leads people to jump to conclusions and this leads to paranoid thinking (Lincoln et al., 2010).

The cause of jumping to conclusions bias is yet to be clearly established and other biases such as the belief confirmation bias (Freeman, Garety, McGuire & Kuipers, 2005) or a bias against disconfirmatory evidence (Moritz & Woodward, 2006) may play a role. These biases relate to the tendency to search for evidence in support of one’s belief only, and the tendency to discount or ignore evidence which does not support your theory.

**Self-esteem and negative cognitions.** A long-standing theory about the cause of paranoia which can be traced back to the work of Freud (1911/2002) is the “Delusions-as-defence theory”. Many authors have suggested that paranoid thoughts are a defence against negative thoughts towards the self and actually protect against low self-esteem. This idea was first introduced by psychodynamic theorists (Colby, 1977) and expanded upon by researchers such as Richard Bentall (Bentall, Kinderman & Kaney, 1994). Other authors have argued that delusions are emotionally congruent and reflect poor self-esteem (Freeman et al., 2002; 2004;
Freeman, 2007). There is mixed evidence for the link between self-esteem and paranoia. It can be argued that if paranoid thoughts are a defence then they should be linked to neutral or higher self-esteem, but if they are linked to low self-esteem or negative beliefs this supports Freeman and colleagues’ (2002; 2008b) theory.

There are few studies in the clinical population linking self-esteem and persecutory delusions and sample sizes are small, making it difficult to draw firm conclusions (Freeman, 2007). Studies in the general population allow for larger sample sizes and avoid complicating factors such as the effect that diagnosis and experience of being a mental health patient might have on self-esteem. Findings in the general population show support for Freeman and colleagues’ theory that low self-esteem is linked to paranoid thinking (Ellett, Lopes & Chadwick, 2003; Freeman et al., 2005a; Fowler et al., 2006; Johns et al., 2004; Martin & Penn, 2001; McKay, Langdon and Colheart, 2005). Some studies have also found this link in clinical groups (Drake et al., 2004). Further experimental work examining the role of low self-esteem is needed to fully establish cause and effect (Freeman, 2007).

However, supporters of the delusions as defence theory argue that self-esteem in people with psychosis is dynamic and unstable and suggest at times of acute psychosis, where paranoia is high, self-esteem is higher than in other clinical groups (Bentall, et al., 2008; Bentall, 2001). The delusion-as-defence theory would argue that there should be a discrepancy between a person’s underlying, implicit, self-esteem and their stated, explicit self-esteem (Freeman, 2007; Bentall et al., 2008). This is very difficult to measure because it involves processes which the theory argues are not conscious and any failure to find such discrepancies can be attributed to poor methodology rather than a lack of support for the theory (Freeman, 2007). However, some methods have been used to try and assess this including the Emotional Stroop task (Garety & Freeman, 1999; Smith, Freeman & Kuipers, 2005). This task involves presenting emotional and non-emotional words and asking...
participants to say the colour of the words. In general participants take longer to name the
colour of emotional rather than neutral words as they are more salient (Gotlib, McCann &
Douglas, 1984). The delusion-as-defence model would predict a bias towards negative self-
concept words for people with paranoia more than controls and differences between this and
overt self-esteem. This has not been found (Bentall & Kaney, 1989; Fear et al., 1996). Lyon
and colleagues (1994) demonstrated that people with paranoia tend to make implicit internal
attributions for negative events and explicit external attributions. They concluded this
supports the idea of delusions as a defence against underlying low self-esteem (Lyon et al.,
1994). However this finding has not been replicated in many subsequent studies (Kristev,
Jackson & Maude, 1999; Martin & Penn, 2002; McKay et al., 2005; Peters and Garety,
2006). All of these studies looked for statistical evidence for this discrepancy at the means at
group level. Therefore we do not know whether this suggested discrepancy between overt and
implicit self-esteem exists in individuals. Other measures of implicit self-esteem have not
consistently found the predicted discrepancy between implicit and explicit self-esteem in
people with paranoia (Bentall et al., 2008).

Trower and Chadwick (1995) argued that there are two types of paranoia; “Poor-Me”
and “Bad-Me”. “Poor-Me” paranoia refers to ideas relating to the belief that persecution is
undeserved. “Bad-Me” paranoia refers to negative beliefs about the self and the idea that
persecution is justified and deserved. Using this distinction, researchers have argued that
“Poor-Me” paranoia is linked to neutral self-esteem and “Bad-Me” paranoia is linked to low
self-esteem. There has been some support for this distinction with some studies finding lower
self-esteem in people with “Bad-Me” than “Poor-Me” delusions (Chadwick, Trower, Juusti-
Butler, & Maguire, 2005; Melo, Taylor, & Bentall, 2006). One study found paranoia was
linked to higher self-esteem following “Poor-Me” paranoid thoughts but lower self-esteem
following “Bad-Me” paranoid thoughts (Udachina, Varese, Oorschot, Myin-Germey's, &
Bentall, 2009). The authors argue that this shows paranoia can be used as a defence in some circumstances (Udachina et al., 2009).

However, the distinction does not appear to be as simple as first thought with evidence suggesting people often switch between “Poor-Me” and “Bad-Me” paranoia (Melo et al., 2006). Using a cross-sectional method, low self-esteem was associated with both types of paranoid thoughts (Melo & Bentall, 2013). However, using a longitudinal design, “Poor-me” paranoia and low self-esteem predicted an episode of “Bad-Me” paranoia and “Bad-Me” paranoia predicted an episode of “Poor-Me” paranoia which the authors argue supports the idea that people try and avoid “Bad-Me” thoughts which leads to “Poor-Me” thoughts (Melo & Bentall, 2013). The authors argue this supports Bentall’s (2001) dynamic theory of paranoia in which people are locked into a continuous fight against negative views of the self (Melo & Bentall, 2013). This theory is extremely complex and difficult to measure and supporting evidence tends to come only from the advocates of this theory. It can be argued that it is more parsimonious to accept the theory of Freeman and colleagues that low self-esteem and negative beliefs of the self are more likely to cause paranoia (Freeman, 2007). Furthermore, in clinical samples, “Poor-Me” paranoia seems to be rare compared to “Bad-Me” thinking (Fornells-Ambrojo & Garety, 2005) suggesting the distinction may not be a helpful one in terms of understanding paranoia.

Instead of focussing on self-esteem as a whole, it may be more helpful to focus on specific negative beliefs and their role in causing paranoia (Chadwick et al., 2005; Freeman et al., 2002; Fowler et al., 2006; Garety et al., 2006). Links between specific negative beliefs and paranoia have been well established in both the clinical (Fowler et al., 2006; Fowler et al., 2012; Smith et al., 2006) and non-clinical populations (Freeman et al., 2003; 2005b). Fowler and colleagues (2006) found that negative schematic beliefs about the self and others were a stronger predictor of paranoia in a sample of 700 students and 250 patients with
psychosis than self-esteem as traditionally measured, and schematic beliefs enabled discrimination between the clinical and student samples whereas self-esteem did not. Further studies have combined measures of negative beliefs, low self-esteem and mood and concluded all three have a role in paranoia (Fowler et al., 2012). This suggests a combination of low mood, low self-esteem, and negative views of the self and others play a direct role in paranoia which is more supported, much less complex and more intuitive than the delusions-as-defence theory.

In conclusion, there is more evidence of a direct and non-defensive link between self-esteem, negative cognitions and paranoia. The exact causal direction of the relationships is not established and may be circular (Freeman, 2007).

**Mood and paranoia**

Theories of persecutory delusions highlight the fact that the content of delusions is often emotionally congruent and therefore emotion and delusions may be linked (Freeman and Garety, 2003). Depression has been found to be one of the best predictors of paranoia in the general population (Martin and Penn, 2001). Depression has also been found to be related to the severity and distress related to paranoia (Smith et al., 2006). Many studies are cross-sectional so it is difficult to determine whether depression or paranoia occurs first or they both occur concurrently, therefore it is not possible to determine cause and effect. A few longitudinal studies have sought to address this. One study used structural equation modelling to ascertain if there is a link between depression and paranoia and if so in which direction. They found depression was predicted by greater levels of paranoia at every stage of assessment over an 18 month period and concluded that this is evidence that paranoia causes depression (Drake et al., 2004). This link between paranoia and depression was not mediated by self-esteem or insight (Drake et al., 2004). However, there could be another factor causing both paranoia and depression or another, unmeasured factor could mediate the relationship so
it is not possible to draw such a firm conclusion about causation from this study. Increases in depression have been reported before instances of paranoid thinking using experience-sampling methods suggesting that depression predicts paranoia (Thewissen et al., 2011). Other studies have found depressed mood predicts paranoia when combined with negative cognition (low self-esteem, negative beliefs about self and others) (Fowler et al., 2012). Freeman and colleagues (2012) found depression and depressive thinking are independent predictors of paranoid thinking in the general population. This has been explained using the “bad-me” subtype of paranoia (Trower and Chadwick, 1995). Other authors have postulated that the social exclusion experienced by people with depression may lead them to perceive themselves as a target for others (Freeman et al., 1998).

In summary it appears depression and paranoia often co-exist and there may be a relationship between the two. However, the direction and nature of this relationship is unclear and more research is needed in this area.

Social Anxiety and Paranoia

Social anxiety is a general term which can be used to refer to several related constructs and is often used interchangeably with the term Social Phobia. Mattick and Clarke (1998) argued there are two separate but related constructs that make up social anxiety; Social Phobia and Social Interaction Anxiety. Social phobia refers to the anxiety and feelings of fear experienced at the prospect of being observed or watched by other people. Social interaction anxiety refers to distress and fear of being judged when meeting and talking with other people (Mattick and Clarke, 1998).

Anxiety, especially social anxiety, has been linked to paranoia. Freeman and colleagues (Freeman et al., 2005; Freeman, 2007) have argued that paranoia exists on a continuum of experiences from very common themes of social evaluation through to ideas regarding severe threat to self, with many people in the general population experiencing the
former and fewer experiencing the latter. Figure 1 shows this continuum in hierarchical form. The common themes identified match those of social anxiety. Therefore, it could be argued that paranoia is an extreme form of social anxiety. Furthermore, social anxiety could lead to more extreme thoughts about threat to self.

![Paranoia Hierarchy Diagram](image)

**Figure 1. The paranoia hierarchy (Freeman et al., 2005)**

Studies have consistently found associations between anxiety and paranoid thinking in the general population (Martin & Penn, 2001; Johns et al., 2004; Freeman et al., 2011; 2012) and in the clinical population (e.g. Startup, Freeman & Garety, 2007; Lysaker et al., 2010; Schutters et al., 2012). These cross-sectional studies clearly demonstrate associations but make it difficult to determine the direction of the relationships and most studies do not include all the proposed factors which could cause anxiety and paranoia, such as cognitive variables like theory of mind and reasoning biases. Anxiety has been found to be predictive of paranoid thinking (Freeman et al., 2003; 2005b; 2008; Valmaggia et al., 2008) and increases in anxiety have been found to occur before paranoid thinking in patients with psychosis (Thewissen et al., 2011), strengthening the evidence for a developmental role of anxiety in paranoid thinking. In the virtual reality tube ride study discussed above, people
who had more paranoid thoughts about neutral stimuli had three distinct characteristics: the tendency to worry, higher levels of anxiety, and negative thoughts about self and others (Freeman et al., 2008a). This suggests that anxiety and worry play a role in determining people's interpretation of a neutral situation as something threatening.

Moreover, in samples from the general population it has been shown that paranoid thinking builds upon common interpersonal anxiety and worries such as fears of rejection (Freeman et al., 2005a, b; Freeman et al., 2008b; Schutters et al., 2012). A recent experimental study demonstrated a link between anxiety and paranoia. 90 healthy participants were randomly assigned to either complete a task which induced anxiety or a neutral task. Those in the anxiety group showed an increase in paranoid thinking and an increased bias towards jumping to conclusions (Lincoln et al., 2010). This study was well-designed and had a number of strengths including the randomised design and experimental manipulation. It provides good support for a causal link between anxiety and paranoia.

Social anxiety has also been shown to predict the persistence of paranoid thinking in a clinical sample (Startup et al., 2007). However, this study had only 25 participants and therefore the finding may be spurious and needs to be replicated with a larger sample size. Freeman and colleagues (2008) also cite anecdotal evidence taken from patient accounts of their experiences that anxiety plays a large part in their day-to-day life.

It has been argued that anxiety and paranoia share the same psychological processes. Firstly, many individuals with persecutory delusions have a thinking style characterised by worry (Freeman & Garety, 1999; Startup et al., 2007; Freeman et al., 2011). Furthermore, meta-worry processes contribute to the distress associated with paranoid thinking (Freeman et al., 2001) and worry has been linked to the persistence of paranoid thinking (Startup et al., 2007).
A second factor shared by both anxiety and paranoia is the presence of safety behaviours. Safety behaviours are behaviours carried out in order to prevent a feared catastrophe from happening (Salkovskis, 1991). This has the important consequence that people fail to disconfirm their belief that a catastrophe will occur and the conviction in threat beliefs (i.e. paranoid beliefs) is maintained (Freeman et al., 2001; Freeman et al., 2008b).

Thirdly, both anxiety and paranoia have been linked to a bias for threat suggesting that both could lead to hypervigilance and a bias for interpreting situations negatively, as in the tube ride study (Fear, Sharp & Healy, 1996; Bentall, Kaney & Bowen-Jones, 1995; Freeman et al., 2008a).

It may be that there is a relationship between social anxiety and paranoia because they are manifestations of the same construct, or they are separate phenomena caused by the same factors, or social anxiety leads to paranoia because they share the same causes and psychological process. It is difficult to determine which of these slightly different theories may be correct but there is good evidence of a relationship between social anxiety and paranoia.

Rationale for this study

Many factors, both cognitive and emotional, have been linked to paranoia with varying degrees of consistency and mixed results in most areas. These factors include theory of mind, attributional bias, jumping to conclusions bias, self-esteem, low mood, generalised anxiety and social anxiety. Most studies have looked at potential factors in isolation and therefore not ruled out the possibility of an unmeasured confounding variable. The mixed findings could be due to the many of factors discussed above, including methodological factors and difficulties associated with studying clinical populations. Very few studies have examined the relationships of multiple factors with paranoia and the relationships between the suggested factors. It seems unlikely that one of the posited factors alone can explain the
occurrence of paranoid thinking in every individual person. The evidence suggests that many of the factors related to paranoia are linked to one another and that paranoid thinking is diverse, meaning it is more likely that a combination of factors can explain the existence of paranoid thinking. Therefore a study is needed in the general population, using a large sample, using several measures of constructs such as theory of mind to overcome the issues of validity and reliability with the established measures, which incorporates measures of other potentially confounding and inter-related variables.

Bentall and colleagues (2009) have used structural equation modelling to establish the relationships of different factors with paranoid delusions. They tested 173 participants with paranoid thinking with diagnoses of schizophrenia spectrum disorders, depression, or late-onset schizophrenia-like psychosis and sixty four matched controls. They assessed participants on measures of theory of mind, jumping to conclusions, attributional style, IQ, mood, anxiety and self-esteem. The model suggests that both pessimistic thinking style (low self-esteem, high levels of depression and anxiety) and cognitive performance (lower intellectual functioning, poor theory of mind and jumping to conclusions bias) are related to paranoia, with the emotion-related processes being more highly correlated (Bentall et al., 2009). A major strength of this study is the focus on the specific symptom of paranoia across diagnostic categories rather than the wider diagnostic category as a whole, meaning it is possible to make clearer conclusions about the nature of paranoia itself. This study lends support to the theories of paranoia which emphasise the direct link between emotional processes and negative thinking and paranoia (e.g. Freeman, 2007) and also allows the potential impact of cognitive factors to be considered. This draws together research in many different areas and has implications for the treatment of paranoia as it highlights the benefit of treating mood-related factors and using metacognitive skills training to improve cognitive reasoning (Bentall et al., 2009).
However, there are a number of weaknesses with this study. Firstly this study only included one Theory of Mind measure (which is simply described as three theory of mind stories) which may not have been validated. The difficulties measuring theory of mind are highlighted above and due to the poor validity of measures it is advisable to use at least two different measures of theory of mind. Secondly they did not account for social anxiety which has been associated with paranoia (Freeman et al., 2002). Finally, they concluded that executive functioning is related to paranoia but this was not measured directly.

Fowler and colleagues (2012) have investigated some of the emotion-related factors linked to paranoia and tried to establish which factors cause and maintain paranoia using a longitudinal design and path analysis. They found that negative cognition, low self-esteem and low mood cause and maintain paranoia and did not find any evidence in the opposite direction (Fowler et al., 2012). This is an important step in demonstrating the links between emotional factors and paranoia but it did not measure or consider the potential impact of cognitive factors such as reasoning biases or theory of mind. Again this study was in the clinical population and so it was not possible to rule out the influence of other symptoms.

It would be advantageous to study the factors related to paranoia in the general population. There are several reasons for this. Firstly, it allows for the whole range of experience of paranoid thinking to be investigated. The continuum theory of paranoia and Freeman and colleagues' (2005) hierarchical model suggest that paranoid thoughts are common in the general population and are widespread. This would suggest that paranoid thinking is not always pathological and may even be adaptive in some circumstances, for example to protect from threat (Bebbington et al., 2013; Freeman, Garety & Fowler, 2008). Investigating the processes linked to paranoia in the general population would enhance understanding of the whole range of paranoid experiences and is normalising rather than pathologising. It also means the potential confounding effect of other symptoms in the
clinical population can be ruled out. Furthermore, it enables studies to use larger sample sizes than most studies of clinical populations due to the difficulty in recruiting and assessing people from the clinical population. (Bebbington et al., 2013; Freeman, 2007).

One study has attempted to look at the relationship between affective factors (insomnia, worry, depression and anxiety) and paranoia in the general population and found they all predict the occurrence and persistence of paranoid thinking (Freeman et al., 2012). This study did not include the relationships between cognitive components or self-esteem and paranoia.

One study included both cognitive and affective potential factors related to paranoia in a sample of 193 undergraduate students (Martin & Penn, 2001). Low mood, social anxiety, avoidance, evaluation apprehension, self-monitoring and low self-esteem were all significantly associated with paranoia but attributional biases were not (Martin & Penn, 2001). However this was not a representative sample of the population as a whole and it did not measure other potential cognitive variables such as theory of mind and other reasoning biases.

Another study has argued that poor theory of mind and social anxiety are two distinct paths to paranoid thinking and they are not linked (Lysaker et al., 2010). However, the method of analysis in this study was questionable because participants were assigned to one of four groups (high paranoia, poor ToM; low paranoia, good ToM; high paranoia, high middle ToM; low paranoia, low middle ToM) based on arbitrary cut offs which were not clinically meaningful. They then found participants in the high paranoia, high-middle ToM, group had higher levels of social anxiety and argue that social anxiety is a pathway to paranoia that is distinct to low Theory of Mind. However, there are other plausible explanations for this finding such as being socially anxious inhibits the use of theory of mind abilities due to the reduction in cognitive abilities that is associated with anxiety. Further
research is needed in order to determine the relationships between proposed cognitive factors affecting paranoia and affective factors, especially social anxiety.

A model of the development of clinical paranoia has been proposed which includes the many posited factors related to paranoia; this is called the threat anticipation model of paranoia (Fowler, 2000; Freeman et al., 2002; 2012; Freeman, 2007; Freeman & Freeman, 2008). This model highlights the importance of both affective and cognitive factors in the development of paranoia and the role of internal and external events (see figure 2).

Figure 2 – The threat anticipation model of paranoia (Freeman et al., 2002; Freeman 2007; Freeman & Freeman 2008; Freeman et al., 2008b).

In summary, some studies have attempted to overcome the limitations of previous research in this area by assessing the contribution of several factors to paranoid thinking but there have been very few studies which have addressed both cognitive and affective aspects in the same study and none which have done this in the general population. Therefore a study
looking at the relative associations between the proposed key factors associated with paranoia in the general population is needed. Furthermore, the theory that social anxiety and paranoia are part of the same hierarchy would suggest that they may share similar causal factors and social anxiety may play a key role in the development of paranoid thinking in the general population. Therefore it may be that some factors are related to paranoia indirectly through social anxiety and an investigation into potential mediating relationships would be helpful in understanding how cognitive and affective factors are related to paranoia and each other.

**Aim and research question**

The aim of this study was to contribute to the current understanding of paranoia by determining which factors are uniquely related to the experience of paranoia and whether there are relationships between the suggested factors. The study aimed to address the limitations of previous research by investigating the key factors that have been linked to paranoia in previous studies in a sample drawn from the general population.

The specific research questions were: (1) “What cognitive and affective factors are uniquely associated with the experience of paranoia in the general population?” (2) “Do affective factors mediate the relationship between cognitive factors and paranoia or do cognitive factors mediate the relationship between affective factors and paranoia?

**Hypotheses**

There are two potential mediation models based on the theories and evidence outlined above. Firstly, cognitive variables such as theory of mind and reasoning biases may be related to paranoia and that this relationship is mediated by affective factors such as anxiety, social anxiety and low mood. This model is presented in Figure 3.
Figure 3 – the first proposed mediation model of the relationships between cognitive factors, social anxiety and paranoia.

The specific hypotheses based on this model were:

a) The cognitive variables (cognitive and emotional Theory of Mind, Jumping to conclusions bias, externalising bias, personalising bias, and self-esteem) will significantly predict social anxiety, generalised anxiety and low mood – Path A

b) Affective variables (social anxiety, generalised anxiety, and low mood) will significantly predict paranoia, whilst controlling for the influence of each of the cognitive variables - Path B

c) The cognitive variables will significantly predict paranoia – Path C

d) The above will no longer been the case when controlling for affective variables – Path C'

Alternatively, it could be that feeling socially anxious, anxious or depressed leads to cognitive deficits such as poor theory of mind and reasoning biases and this leads to paranoia.

This model was also tested (see Figure 4).
The specific hypotheses based on this model were:

a) Affective variables (social anxiety, generalised anxiety, low mood) will significantly predict the cognitive variables (cognitive and emotional theory of mind, jumping to conclusions bias, externalising bias, personalising bias and self-esteem) – Path A

b) The cognitive variables will significantly predict paranoia, whilst controlling for the influence of each of the affective variables - Path B

c) Social anxiety, generalised anxiety and low mood will significantly predict paranoia - Path C

d) The above will no longer been the case when controlling for the cognitive variables – Path C’

METHOD

Design

This study used a cross-sectional design with a self-selected sample from the general population. The dependent variable was the level of paranoia. The independent variables were cognitive Theory of Mind, affective Theory of Mind, Jumping to Conclusions Bias, Externalising Bias, Personalising Bias, Depression, Anxiety, Social Anxiety, and Self-Esteem (all measured by self-report questionnaires). The variables were selected to match those used
in Bentall and colleagues' (2009) study and also to include aspects of the threat anticipation model of paranoia, such as social anxiety (Freeman et al., 2002; Freeman 2007; Freeman & Freeman 2008; Freeman et al., 2008b).

Participants

Recruitment. This study recruited participants from the general population using an online survey. An advertisement was placed on the social networking sites Facebook and Twitter, the advertising website Gumtree, and mental health charities such as Sane also advertised the study using their social networking pages on Facebook and Twitter. This was in order to obtain participants with a wide range of paranoia scores in order to avoid floor or ceiling effects. Higher levels of paranoia have been found in inner city areas (Freeman, 2007) and for this reason recruitment was targeted at people from these areas, using the website Gumtree, as this enabled inner city locations to be specified. See Appendix 1 for the recruitment advertisement.

Inclusion/exclusion criteria. The study was open to all. However, participants were excluded from the analysis if they completed the measures too quickly (within 30 minutes, as calculated by the author timing how long it took to complete the questionnaires as quickly as possible whilst paying attention). No participants were excluded on these grounds.

Sample size estimates. Green (1991) advocates the "rule of thumb" that sample size = 104 + the number of independent variables. This suggested a sample size of 119 was needed to obtain a power of 80% to detect a medium effect size at the 5% level using a 2-sided test as this study has 15 independent variables. The exact effect sizes expected were not known as most existing studies in this area have not used the same measures, or method of analysis, or population, as this study so a medium effect size was assumed. One study which combined measures of some cognitive and affective factors in the student population found large effects ($f^2 = 0.59$) using multiple regression analysis (Martin & Penn, 2001). Fritz and
MacKinnon (2007) suggest a sample size of 76 is needed for mediation analyses to detect medium effects in both pathways. Therefore it was aimed to recruit at least 119 participants.

**Participant information.** Participants were anonymous and were not asked to give any identifying information. 255 participants began and 151 participants aged 18-70 (M 34.7, SD 12.29) completed the online survey. Of these 125 (83%) were female, 145 (96%) were White, 75 (49.7%) were married, in a civil partnership or living with a partner, 99 (65.6%) were employed and 58 (38.4%) had a diagnosis of a mental health condition.

**Ethical Considerations**

This project was given favourable ethical opinion by the Surrey University Faculty of Arts and Human Sciences Ethics Committee. Participants were asked to read a detailed information sheet and to give consent to take part in the study. It was made clear that they could withdraw at any time by closing their web browser. Participants were made aware the study may address sensitive issues in the information screen. Participants were given information on where they could seek support if the study caused them any distress in the debrief screen shown at the end of the study. They were also informed that their responses were anonymous and no identifying information was collected and that the data would be stored securely and retained for a period of ten years. See appendix for the letter of favourable ethical opinion and copies of the participant information sheet, consent screen and debrief information.

**Measures**

Measures were selected based on the following criteria:

- Reliability – good internal consistency indicated by an acceptable level of Cronbach’s alpha (over 0.7)
- Widely used within the field
- Acceptable face and content validity
• Brevity – as this was a large survey with many different measures
• Available in a computerised format

See appendix 6 for copies of all measures.

**Paranoia.** This was measured using the Paranoia Checklist (Freeman et al., 2005).
This is a multi-dimensional measure that assesses three aspects of paranoia (frequency, preoccupation and distress). There are 18 items in which participants are given a thought and asked to rate how often they have had it, how much they believe it, and how distressing they found that thought on a five point scale. It has excellent internal reliability (Cronbach’s alpha of 0.9 or above for all three scales) and good convergent validity when compared to other measures of paranoia, including the Paranoia Scale (Freeman et al., 2005). It is used widely in research into paranoia in the general population. In the current study Cronbach’s alpha for the frequency scale was 0.96; for the preoccupation scale was 0.95 and for the distress scale was 0.97.

**Theory of Mind.** There is currently a paucity of measures of Theory of Mind for adults with robust psychometric properties (see appendix 7 for a review). After a thorough literature search of the available measures and consultation with an expert in adult Theory of Mind (Deeley, personal communication) two of the most widely used tests of adult Theory of Mind were decided upon due to their sensitivity to differences in adults in the general population, the ease of use, and the fact they reportedly capture different aspects of theory of mind. Furthermore, an unpublished measure of more complex theory of mind skills in vignettes approximating real-life dilemmas was also used in this study.

1. **Reading the Mind in the Eyes Test** (Baron-Cohen et al., 1997; Baron-Cohen, Wheelwright and Hill, 2001; Baron-Cohen, 2004). This measure presents 36 pictures of people’s eyes and asks participants to identify which emotion the person pictured is experiencing from a list of four choices. One point is awarded for each correct answer
leading to a total score out of 36. This test has been found to be sensitive to subtle theory of mind differences in adults and adolescents (Baron-Cohen et al., 1997; Baron-Cohen et al., 2001; Baron-Cohen, 2004). Internal consistency estimates have been reported to range from poor to acceptable with Cronbach’s alphas of between 0.48 and 0.70 in different studies (summarised in Vellante et al., 2013 and Kirkland et al., 2013).

2. Strange Stories (Happe, 1994). This test presents stories in which an individual says something they do not literally mean. An example of a story is:

Simon is a big liar. Simon’s brother Jim knows this, he knows that (1) Simon never tells the truth! Now yesterday Simon stole Jim’s Ping-Pong paddle, and Jim knows that Simon has hidden it somewhere, though he can’t find it. He’s very cross. So he finds Simon and he says, “Where is my Ping-Pong paddle? You must have hidden it either in the cupboard of under your bed?” Simon tells him the paddle is under his bed.

Q: Why will Jim look in the cupboard for the paddle?

The original set of 24 stories contained 12 story types with two examples of each type. The subset of the four most challenging stories for adults was used (Fletcher et al., 1995; White et al., 2009) in this study. These stories included: misunderstanding, double bluff, persuasion and white lies (see appendix for the items and scoring). This subset of stories has been found to be sensitive to Theory of Mind differences in neurotypical adults. There is good correlation between this smaller selection of stories and the original 24 item test which gives evidence of the construct validity of these items (White et al., 2009). Further evidence of construct validity is that it correlates highly with a theory of mind battery of tests (White et al., 2009). This test is reported to have good inter-rater reliability (White et al., 2009) but there are no other reported reliability statistics such as Cronbach’s alpha. In this study Cronbach’s alpha was 0.39 which is poor.
3. Novel Test of Social Cognition (Gulliver, 2008, unpublished). In this test participants are first presented with a social dilemma and asked why they thought the protagonist acted in such a way. They are then given further information and asked more questions about this situation, including what they would do or what they would advise a friend. This measure was designed to overcome some of the methodological flaws in current tests of theory of mind. It was designed to test participants' use of their theory of mind skills in complex real-life situations. It has three scales, perspective taking, accuracy/plausibility, and empathy. This has been validated in a previously unpublished study and was found to have good internal consistency with Cronbach's alpha's of 0.76 – 0.89, good inter-rater reliability (significant intraclass correlations coefficients of r = 0.72 to r = 0.96) and good face validity (Gulliver, 2008, unpublished). A subset of the four most reliable and valid vignettes was taken from this test by selecting the four items that correlated most strongly with other measures of theory of mind, with the best item to total scale correlations, and with the most variation within the item. Cronbach's alpha for the total of all scales in this study was 0.8.

An example of one of the vignettes is:

Info: A woman has an unwanted pregnancy. She decides not to have an abortion.

Question: Why might she decide this?

Info: She is a Roman Catholic. The Catholic Church strong prohibits abortion.

Question: What would you advise and how would you feel in this situation if you shared the woman's belief that abortion is wrong, and were a friend of hers?

Question: Do you consider abortion to be morally wrong?

Participants' responses to each item are given a score of 0 – 2 on each scale, giving a maximum score of 8 for each scale (see Appendix 8 for scoring criteria).
Jumping to Conclusions Bias. The Beads Task was used to measure jumping to conclusions bias (Garety, Hemsley & Wessely, 1991). In this task participants are shown two jars, one with 85 black beads and 15 yellow beads in and one with 85 yellow beads and 15 black in. They are told that one of the jars has been chosen. They are then presented with one bead and asked either to guess which jar the beads came from or to see another bead. The outcome measure is how many beads the participant asks to see before making a guess as to which jar was chosen. This task has been found to accurately discriminate between people with and without paranoia and is widely used (Garety, Hemsley & Wessely, 1991).

Attributional Bias. The Internal, Personal and Situational Attributions Questionnaire (IPSAQ) was used to assess attributional bias (Kinderman & Bentall, 1996). This is a 32-item questionnaire in which participants are asked to give a cause for a situation, for example “a neighbour invited you in for a drink”, and say whether the cause is due to something about them, someone else, or the situation/circumstances. This questionnaire was specifically designed to measure attributional style in people with paranoia in the general population. Externalising Bias (EB) is calculated by subtracting the number of internal attributions for negative events from the number of internal attributions for positive events. The potential range of the EB score is -16 to +16 with EB scores of above 0 indicating a “self-serving” bias. Personalising Bias (PB) is calculated by dividing the total number of personal attributions for negative events by the sum of the total personal and situations attributions for negative events. A PB score above 0.5 suggests the tendency to use personal rather than situational external attributions for negative events (more likely to blame other people than the situation).

The IPSAQ has acceptable internal consistency (Cronbach’s alpha for EB a= 0.72, and PB a = 0.76). EB and PB have been found to be unrelated (Spearman’s r = -0.14, P = 0.21) (Kinderman & Bentall, 1996). The EB scale has been found to correlate highly with the
internal scale of the ASQ (Spearman’s $r = 0.39$, $P < 0.002$) and scores on the PB scale can be predicted by BDI score ($\beta = 0.85$, $t = 3.32$, $P < 0.002$) which demonstrates good convergent validity (Kinderman & Bentall, 1996). In this study Cronbach’s alpha for the overall measure was 0.84.

**Mood.** The PHQ-8 (Kroenke et al., 2009) was used to measure depression. This is an eight-item questionnaire which asks participants to rate how often they have experienced a symptom over the past two weeks. The responses are rated on a four-point scale: “not at all, several days, more than half the days, and nearly every day”. It is a variation of the widely-used PHQ-9 which is used in primary care settings. The PHQ-8 was chosen over the PHQ-9 because the PHQ-8 does not contain the item on suicidality. It was thought unethical to ask about suicidality when no further support could be offered to participants and participants’ responses were anonymous. The PHQ-8 has good face validity and reliability (Cronbach’s alpha = 0.86) and is sensitive to differences in severity (Kroenke et al., 2009). Cronbach’s alpha in this study was 0.93.

**Anxiety.** The GAD-7 (Spitzer et al., 2006) was used to measure generalised anxiety. This is a seven-item questionnaire which asks participants to rate how often they have experienced a symptom over the past two weeks. The responses are made on a four-point scale “not at all, several days, more than half the days, and nearly every day”. This is brief and widely used in the general population. Cronbach’s alpha for this scale has been reported as 0.92 and it has good test-retest reliability (intraclass correlations with Mental Health Practitioner-administered version of the same scale = 0.83) (Spitzer et al., 2006). In the current study Cronbach’s alpha was 0.95.

**Social Anxiety.** This was measured using the Mattick and Clarke (1998) Social Phobia Scale (SPS) and Social Interaction Anxiety Scales (SIAS). These are two 20 item scales in which participants are asked to rate how much the statement is characteristic of
them from 0 (not at all) to 4 (extremely). The two scales measure two different aspects of social anxiety and therefore it is recommended both are used (Mattick & Clarke, 1998). These have high levels of internal consistency (Cronbach’s alpha = 0.94 for both scales) and test-retest reliability and have been shown to discriminate between social anxiety and other clinical symptoms such as generalised anxiety and depression (Mattick & Clarke, 1998). They also have good convergent validity when compared with other measures of social anxiety (for example the social phobia subscale of the Marks and Mathews (1979) Fear Questionnaire) (Mattick & Clarke, 1998). In this study Cronbach’s alpha was 0.96 for the SPS and 0.90 for the SIAS.

**Self-esteem.** This was measured using the Rosenberg Self-Esteem Scale (Rosenberg, 1965). This is a widely used easy to administer brief measure used to assess individual self-esteem. It has ten items and participants have to rate how much they agree with the statement on a 4-point scale. This measure has had numerous psychometric analyses which suggest acceptable to high internal reliability and good test-retest reliability (Gray-Little, Williams and Hancock, 1997). In this study Cronbach’s alpha for this scale was 0.92 for the positive items and 0.89 for the negative items.

**Demographics.** Information on age, gender, marital status, ethnicity, employment and educational achievement was collected. There were also optional questions on mental health diagnosis, drug and alcohol use at the end of the online survey.

**Procedure**

Participants were recruited through advertising and charity websites and redirected to the study website. They were then asked to read an information sheet and consent to take part in the study before proceeding. Firstly demographic questions were presented as these were thought to be a gentle introduction to the study. The paranoia checklist was then presented as this was the most important questionnaire as it was the focus of the study. Then the measures
of all the independent variables were presented in an order that gave some variation in the type of response needed (free text response or selection of set responses, visual or verbal information). This was in order to prevent fatigue or boredom of the participants as there were a number of measures to complete. The full set of measures in the order presented can be found in Appendix 6. The study took approximately 45 minutes to complete. Participants were free to withdraw at any time by closing their web browser. At the end of the study participants were shown a debrief screen which provided them with further information on the study and also gave them contact details of where they could find support if necessary. See Appendices 3-5 for the information, consent and debrief screens.

**Planned Data Analysis**

Data was analysed using the statistics package SPSS. The raw data was screened for missing data and all cases with missing data were removed. Means, standard deviations and distribution of each scale were calculated and checked for normality. If the assumptions of parametric tests were not met then non-parametric statistics were used. Initially correlations were calculated between each independent variable and the dependent variable separately. Then hierarchical multiple regression analyses were carried out in three steps. Firstly the demographic variables that have been linked to paranoia were entered (age, gender, years in education); then the cognitive variables (theory of mind, attributional bias, jumping to conclusions bias, and self-esteem); and then the affective variables were entered (depression, generalised anxiety, and social anxiety) into the model. If some of the variables predicted paranoia when entered into the model alone but then stopped being significant when other variables are entered into the model then this would be suggestive of potential mediation relationships. Mediation analyses were then planned using the following models based on the reading of the literature:
Figure 5 – the first proposed mediation model of the relationships between cognitive factors, social anxiety and paranoia.

Figure 6 – the second proposed mediation model of the relationships between cognitive factors, social anxiety and paranoia.

RESULTS

Descriptives and distribution of the data

Table 1 shows the mean, standard deviation and distribution of each of the scales used in the study. This data was tested for normal distribution using the Shapiro-Wilk test as it is more powerful than the Kolmogorov-Smirnov (K-S) test (NIST, 2008; Field and Hole, 2003). Significant deviations from normality are shown in bold. No scales were normally distributed and therefore non-parametric tests were used for the analysis.
Table 1 – Mean, Standard Deviation and distribution of the data.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Possible Range</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>W</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paranoia Checklist Frequency Scale</td>
<td>0</td>
<td>70</td>
<td>0-72</td>
<td>15.02</td>
<td>17.23</td>
<td>0.793</td>
<td>0.000</td>
</tr>
<tr>
<td>Paranoia Checklist Conviction Scale</td>
<td>0</td>
<td>72</td>
<td>0-72</td>
<td>17.87</td>
<td>17.31</td>
<td>0.804</td>
<td>0.000</td>
</tr>
<tr>
<td>Paranoia Checklist Distress Scale</td>
<td>0</td>
<td>214</td>
<td>0-216</td>
<td>48.58</td>
<td>51.93</td>
<td>0.795</td>
<td>0.000</td>
</tr>
<tr>
<td>Paranoia Checklist total Reading the Mind in the Eyes</td>
<td>11</td>
<td>34</td>
<td>0-36</td>
<td>26.33</td>
<td>3.76</td>
<td>0.949</td>
<td>0.000</td>
</tr>
<tr>
<td>Distress Scale</td>
<td>1</td>
<td>10</td>
<td>1-10</td>
<td>5.37</td>
<td>3.12</td>
<td>0.892</td>
<td>0.000</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>0</td>
<td>30</td>
<td>0-30</td>
<td>15.62</td>
<td>6.71</td>
<td>0.977</td>
<td>0.014</td>
</tr>
<tr>
<td>Strange Stories</td>
<td>0</td>
<td>8</td>
<td>0-8</td>
<td>6.44</td>
<td>1.40</td>
<td>0.864</td>
<td>0.000</td>
</tr>
<tr>
<td>TCSC accuracy scale</td>
<td>4</td>
<td>8</td>
<td>0-8</td>
<td>7.51</td>
<td>0.87</td>
<td>0.618</td>
<td>0.000</td>
</tr>
<tr>
<td>TCSC EE Scale</td>
<td>0</td>
<td>8</td>
<td>0-8</td>
<td>4.32</td>
<td>1.85</td>
<td>0.963</td>
<td>0.000</td>
</tr>
<tr>
<td>TCSC PT Scale</td>
<td>3</td>
<td>8</td>
<td>0-8</td>
<td>6.87</td>
<td>1.27</td>
<td>0.820</td>
<td>0.000</td>
</tr>
<tr>
<td>Externalising bias</td>
<td>-13</td>
<td>14</td>
<td>-16 - +16</td>
<td>0.95</td>
<td>4.91</td>
<td>0.960</td>
<td>0.000</td>
</tr>
<tr>
<td>Personalising bias</td>
<td>0</td>
<td>1</td>
<td>0 - 1</td>
<td>0.62</td>
<td>0.27</td>
<td>0.955</td>
<td>0.000</td>
</tr>
<tr>
<td>PHQ8</td>
<td>0</td>
<td>24</td>
<td>0-24</td>
<td>8.54</td>
<td>7.14</td>
<td>0.882</td>
<td>0.000</td>
</tr>
<tr>
<td>GAD7</td>
<td>0</td>
<td>21</td>
<td>0-21</td>
<td>6.66</td>
<td>6.44</td>
<td>0.844</td>
<td>0.000</td>
</tr>
<tr>
<td>SPS</td>
<td>0</td>
<td>76</td>
<td>0-80</td>
<td>21.08</td>
<td>18.44</td>
<td>0.856</td>
<td>0.000</td>
</tr>
<tr>
<td>SIAS</td>
<td>6</td>
<td>65</td>
<td>0-76</td>
<td>27.68</td>
<td>14.17</td>
<td>0.913</td>
<td>0.000</td>
</tr>
</tbody>
</table>

TCSC – Test of complex social cognition  
EE – Emotional Empathy scale  
PT – Perspective Taking scale  
SPS – Social Phobia Scale  
SIAS – Social interaction anxiety scale  
W – Shapiro-Wilk test statistic
The paranoia checklist would not be expected to be normally distributed as it is likely that only a small proportion of the general population would experience very high levels of paranoia and a large proportion of the population would be expected to experience no paranoia or low-levels of paranoia. Figure 7 shows the distribution of the paranoia checklist total scores which are skewed towards the baseline as expected. The means and standard deviations of the paranoia checklist scales are similar to those found by Freeman and colleagues (2005) so it is likely that the distribution of scores on the paranoia checklist accurately reflects the occurrence of paranoia in the general population. Similarly it could be expected that the measures of mood and anxiety and cognitive factors would not be normally distributed and would be skewed towards the "normal" range, in most cases this is the baseline but for the self-esteem and theory of mind measures this is the ceiling. The distribution of scores on all scales is skewed in the direction expected. Predictor variables do not need to be normally distributed for multiple regression analyses what is important is that the residuals from the regression analysis are normally distributed (Field, 2013).

![Histogram](image)

Figure 7 – distribution of the paranoia checklist total scores.
Drop outs

104 participants (41%) dropped out of the study. There were no differences between those who dropped out and completed the survey on demographic variables (such as age, gender, years in education) and scores on the paranoia checklist (see appendix 9). As there were no significant differences between those who dropped out and those who completed the survey, the data from those who dropped out was excluded from the analysis. This was the most rigorous way of managing missing data and the study was still adequately powered when these cases were removed. This avoided making any inferences about those people who dropped out. It also avoided the possibility of duplicate cases if people were unable to complete the survey and then completed it at a later date.

Correlations between variables

Spearman’s rho correlations were calculated between scores on the paranoia checklist and all other variables (see table 2). The total paranoia checklist scores were significantly correlated with age, self-esteem, Test of complex social cognition accuracy and perspective taking scales (Theory of Mind), externalising bias, low mood (PHQ-8), anxiety (GAD-7), and both measures of social anxiety. Years in education, reading the mind in the eyes, total draws on the beads task, and personalising bias were not significantly correlated with paranoia and so were not included in the multiple regression analysis.
Table 2 – Spearman’s Rho correlation coefficients between all variables and the paranoia checklist scales

<table>
<thead>
<tr>
<th>Variable</th>
<th>Paranoia Checklist frequency scale</th>
<th>Paranoia Checklist conviction scale</th>
<th>Paranoia Checklist distress scale</th>
<th>Paranoia Checklist total scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paranoia Checklist frequency scale</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paranoia Checklist conviction scale</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paranoia Checklist distress scale</td>
<td>0.834**</td>
<td>0.921**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Paranoia Checklist total</td>
<td>0.921**</td>
<td>0.976**</td>
<td>0.962**</td>
<td>1</td>
</tr>
<tr>
<td>Age</td>
<td>-0.290**</td>
<td>-0.229**</td>
<td>-0.217**</td>
<td>-0.256**</td>
</tr>
<tr>
<td>Years in education</td>
<td>-0.130</td>
<td>-0.145</td>
<td>-0.106</td>
<td>-0.135</td>
</tr>
<tr>
<td>Reading the Mind in the Eyes</td>
<td>-0.149</td>
<td>-0.134</td>
<td>-0.088</td>
<td>-0.125</td>
</tr>
<tr>
<td>Beads task total draws</td>
<td>0.037</td>
<td>-0.060</td>
<td>-0.071</td>
<td>-0.037</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>-0.568**</td>
<td>-0.528**</td>
<td>-0.490**</td>
<td>-0.552**</td>
</tr>
<tr>
<td>Strange Stories</td>
<td>-0.065</td>
<td>-0.059</td>
<td>-0.028</td>
<td>-0.054</td>
</tr>
<tr>
<td>Test of Complex Social Cognition accuracy scale</td>
<td>-0.255**</td>
<td>-0.272**</td>
<td>-0.195**</td>
<td>-0.260**</td>
</tr>
<tr>
<td>Test of Complex Social Cognition Emotional Empathy scale</td>
<td>-0.145**</td>
<td>-0.111</td>
<td>-0.045</td>
<td>-0.101</td>
</tr>
<tr>
<td>Test of Complex Social Cognition Perspective Taking scale</td>
<td>-0.219**</td>
<td>-0.202*</td>
<td>-0.132</td>
<td>-0.191*</td>
</tr>
<tr>
<td>Total Cognitive Theory of Mind scale (Test of complex social cognition scales plus strange stories)</td>
<td>-0.18*</td>
<td>-0.15</td>
<td>-0.08</td>
<td>-0.14</td>
</tr>
<tr>
<td>Externalising Bias</td>
<td>-0.317**</td>
<td>-0.265**</td>
<td>-0.237**</td>
<td>-0.287**</td>
</tr>
<tr>
<td>Personalising Bias</td>
<td>0.097</td>
<td>0.084</td>
<td>0.082</td>
<td>0.080</td>
</tr>
<tr>
<td>PHQ8</td>
<td>0.698**</td>
<td>0.593**</td>
<td>0.559**</td>
<td>0.629**</td>
</tr>
<tr>
<td>GAD7</td>
<td>0.635**</td>
<td>0.588**</td>
<td>0.598**</td>
<td>0.614**</td>
</tr>
<tr>
<td>SPS</td>
<td>0.794**</td>
<td>0.760**</td>
<td>0.745**</td>
<td>0.789**</td>
</tr>
<tr>
<td>SIAS</td>
<td>0.720**</td>
<td>0.656**</td>
<td>0.654**</td>
<td>0.700**</td>
</tr>
</tbody>
</table>

* - r is significant at the p=0.05 level

** - r is significant at the p=0.01 level
The effect of gender

Independent samples T-tests were used to investigate gender differences on all the independent variables. Table 3 shows the t-test results. There were no significant differences between males' and females' scores on the paranoia checklist. There were significant gender differences in jumping to conclusions, with men making a choice sooner than women, and significant differences in some of the theory of mind scales, including strange stories and the test of social cognition scales, with men scoring lower on average than women. Due to these differences between males and females, gender was included in the regression analysis.

Table 3 – Mann-Whitney U tests comparing mean scores of males and females on each measure

<table>
<thead>
<tr>
<th>Variable</th>
<th>Males (N=25)</th>
<th>Females (N=126)</th>
<th>U</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paranoia Checklist total</td>
<td>51.96</td>
<td>49.10</td>
<td>1548.0</td>
<td>.89</td>
</tr>
<tr>
<td>Reading the Mind in the eyes</td>
<td>25.36</td>
<td>26.52</td>
<td>1329.0</td>
<td>.25</td>
</tr>
<tr>
<td>Beads task total draws</td>
<td>3.96</td>
<td>5.65</td>
<td>1116.0</td>
<td>.02</td>
</tr>
<tr>
<td>PHQ-8</td>
<td>8.36</td>
<td>8.57</td>
<td>1554.5</td>
<td>.92</td>
</tr>
<tr>
<td>GAD-7</td>
<td>6.68</td>
<td>6.66</td>
<td>1456.5</td>
<td>.55</td>
</tr>
<tr>
<td>SPS</td>
<td>17.84</td>
<td>21.72</td>
<td>1386.0</td>
<td>.34</td>
</tr>
<tr>
<td>SIAS</td>
<td>25.84</td>
<td>28.04</td>
<td>1462.0</td>
<td>.57</td>
</tr>
<tr>
<td>Self-Esteem</td>
<td>16.80</td>
<td>15.38</td>
<td>1418.0</td>
<td>.43</td>
</tr>
<tr>
<td>Strange Stories</td>
<td>5.56</td>
<td>6.61</td>
<td>946.5</td>
<td>.00</td>
</tr>
<tr>
<td>Test of Complex Social Cognition</td>
<td>7.08</td>
<td>7.60</td>
<td>1197.0</td>
<td>.02</td>
</tr>
<tr>
<td>accuracy scale</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test of complex social cognition</td>
<td>6.16</td>
<td>7.01</td>
<td>1083.0</td>
<td>.01</td>
</tr>
<tr>
<td>perspective taking scale</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test of complex social cognition</td>
<td>3.56</td>
<td>4.48</td>
<td>1148.5</td>
<td>.03</td>
</tr>
<tr>
<td>cognition emotional empathy scale</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Externalising Bias</td>
<td>-0.20</td>
<td>1.10</td>
<td>1272.5</td>
<td>.13</td>
</tr>
<tr>
<td>Personalising Bias</td>
<td>0.60</td>
<td>0.62</td>
<td>1508.5</td>
<td>.83</td>
</tr>
</tbody>
</table>

Significant differences are shown in bold
The effect of substance abuse

Mann-Whitney U tests also demonstrated differences in scores on the paranoia checklist between those who answered “yes” or “no” to the questions about drug and alcohol use. Those who had used drugs and regularly used alcohol scored higher on average on the paranoia checklist than those who had not (see table 4). For this reason drug and alcohol use were included as possible predictors in the multiple regression analysis.

Table 4 – Mann-Whitney U tests comparing scores on the paranoia checklist for those who answered yes to using drugs or alcohol

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean paranoia checklist score</th>
<th>U</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Have you ever used drugs or inhaled substances</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>to get high, feel elated or get a buzz?”</td>
<td>Yes</td>
<td>68</td>
<td>63.84</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>81</td>
<td>38.35</td>
<td></td>
</tr>
<tr>
<td>“Have you ever needed to drink a significant</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>amount of alcohol to get you through the day?”</td>
<td>Yes</td>
<td>29</td>
<td>94.72</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>122</td>
<td>38.84</td>
<td></td>
</tr>
</tbody>
</table>

NB answering these questions was optional so N does not total 151 for each question.

Relationships between independent variables

Spearman’s rho correlation coefficients were calculated for the relationship between each independent variable (see appendix 10). These variables were then tested for multicollinearity in a preliminary multiple regression analysis including all the independent variables and by examining the tolerance and VIF (Variance Inflation Factor) for each variable. A general rule is that a tolerance of less than 0.2 and a VIF of above 5 is problematic (O’Brien, 2007). The only problematic variable was the Social Phobia Scale which had a tolerance of 0.16 and a VIF of 6.14. This was most likely due to the shared variance with the other social anxiety measure (SIAS). This variable was therefore removed from the analysis.
Theory of Mind measures

The Cognitive Theory of Mind measures (Strange stories and test of complex social cognition scales) were highly correlated with each other and therefore could possibly have caused instability in the multiple regression models. Therefore the scores for the three scales from the test of complex social cognition and the strange stories total were added together and included in the analysis as one total cognitive theory of mind scale. This scale had acceptable internal consistency with a Cronbach’s alpha score of 0.71 which was an improvement on the internal consistency of the measures separately.

Regression analysis

A hierarchical multiple regression analysis was carried out to predict paranoia. In order to make the regression analysis more robust and to avoid violations of the assumptions of regression, bootstrapping of 1000 samples was performed, as recommended by Field (2013) (see appendix 11 for discussion of how the data meets the assumptions of multiple regression analysis). A hierarchical approach was taken to the multiple regression analysis with the demographic variables added first, then the cognitive variables then the affective variables. An alternative method was also carried out in which the affective variables were entered at the second stage and the cognitive variables were entered at the third stage. This method was chosen in order to assess the contribution of each of the variables and to test for possible mediation effects using a logical approach.

On the first step the demographic variables age, gender, drug and alcohol use were entered into the model. In this model alcohol and drug use significantly predicted paranoia (see table 5) ($R^2 = .22$). The negative beta values indicate that those who answered yes to alcohol and drug use were experiencing higher levels of paranoia.
Table 5 - Linear model of predictors of scores on the paranoia checklist with 95% bias corrected and accelerated confidence intervals reported in parentheses.

<table>
<thead>
<tr>
<th></th>
<th>b</th>
<th>SE B</th>
<th>β</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>184.24</td>
<td>24.22</td>
<td>-.069</td>
<td>.355</td>
</tr>
<tr>
<td></td>
<td>(136.79, 234.94)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-0.29</td>
<td>0.32</td>
<td>-.069</td>
<td>.355</td>
</tr>
<tr>
<td></td>
<td>(-0.83, 0.28)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-0.43</td>
<td>9.63</td>
<td>-.003</td>
<td>.967</td>
</tr>
<tr>
<td></td>
<td>(-18.17, 17.66)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol Use</td>
<td>-53.86</td>
<td>10.89</td>
<td>-.405</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td>(-75.00, -32.22)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug Use</td>
<td>-16.87</td>
<td>8.47</td>
<td>-.162</td>
<td>.049</td>
</tr>
<tr>
<td></td>
<td>(-35.09, 2.060)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

On the second step all the cognitive variables that were significantly correlated with paranoia were entered into the model including the total of the cognitive theory of mind measures, externalising bias, and self-esteem. The second model explained significantly more of the variance than the first model ($R^2 = .49, \Delta R^2 = .26, p < 0.001$) and had showed a large effect size ($f^2 = 0.96$). Alcohol use, drug use, cognitive theory of mind, self-esteem, and externalising bias significantly predicted paranoia (see table 6). Lower levels of theory of mind, lower self-esteem and less externalising bias were linked to increased paranoia.

Table 6 - Linear model of predictors of scores on the paranoia checklist, with 95% bias corrected and accelerated confidence intervals reported in parentheses.

<table>
<thead>
<tr>
<th></th>
<th>b</th>
<th>SE B</th>
<th>β</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>245.18</td>
<td>33.06</td>
<td>.003</td>
<td>.975</td>
</tr>
<tr>
<td></td>
<td>(179.99, 302.13)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.01</td>
<td>0.30</td>
<td>.003</td>
<td>.975</td>
</tr>
<tr>
<td></td>
<td>(-0.54, 0.60)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-8.17</td>
<td>8.61</td>
<td>-.06</td>
<td>.338</td>
</tr>
<tr>
<td></td>
<td>(-25.15, 7.99)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol use</td>
<td>-31.83</td>
<td>10.75</td>
<td>-.24</td>
<td>.003</td>
</tr>
<tr>
<td></td>
<td>(-53.79, -10.20)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug Use</td>
<td>-14.98</td>
<td>7.00</td>
<td>-.14</td>
<td>.039</td>
</tr>
<tr>
<td></td>
<td>(-29.64, -0.741)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self Esteem</td>
<td>-2.55</td>
<td>0.65</td>
<td>-.33</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td>(-3.88, -1.37)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Externalising Bias</td>
<td>-2.55</td>
<td>1.04</td>
<td>-.24</td>
<td>.018</td>
</tr>
<tr>
<td></td>
<td>(-4.73, -0.42)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognitive Theory of Mind (Composite score of ToM measures)</td>
<td>-2.52</td>
<td>0.79</td>
<td>-.20</td>
<td>.002</td>
</tr>
<tr>
<td></td>
<td>(-3.97, -0.78)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
On the third step all the emotional variables were entered into the model (depression, anxiety, Social interaction anxiety scale). The third model explained significantly more of the variance than the second model ($R^2 = 0.73, \Delta R^2 = 0.25, p < 0.001$) with a large effect size ($f^2 = 0.89$). In this model anxiety (GAD-7 scores), social anxiety (social interaction anxiety scale scores), and cognitive theory of mind, predicted scores on the paranoia checklist (see table 7). Higher levels of generalised anxiety and social anxiety were linked to increased paranoia and poorer theory of mind abilities were linked to increased paranoia.

Table 7 - Linear model of predictors of scores on the paranoia checklist with 95% bias corrected and accelerated confidence intervals reported in parentheses.

<table>
<thead>
<tr>
<th></th>
<th>b</th>
<th>SE B</th>
<th>β</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>60.47</td>
<td>32.48</td>
<td>.053</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-4.89, 116.11)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.15</td>
<td>0.27</td>
<td>.04</td>
<td>.498</td>
</tr>
<tr>
<td></td>
<td>(-.29, 0.58)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-1.73</td>
<td>6.20</td>
<td>-.01</td>
<td>.792</td>
</tr>
<tr>
<td></td>
<td>(-12.56, 9.28)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol Use</td>
<td>-13.42</td>
<td>8.22</td>
<td>-.10</td>
<td>.103</td>
</tr>
<tr>
<td></td>
<td>(-28.56, 2.67)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug Use</td>
<td>-8.06</td>
<td>5.03</td>
<td>-.08</td>
<td>.124</td>
</tr>
<tr>
<td></td>
<td>(-19.17, 3.13)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self Esteem</td>
<td>-0.01</td>
<td>0.47</td>
<td>-.001</td>
<td>.983</td>
</tr>
<tr>
<td></td>
<td>(-0.95, 0.82)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Externalising Bias</td>
<td>-1.02</td>
<td>0.68</td>
<td>-.10</td>
<td>.135</td>
</tr>
<tr>
<td></td>
<td>(-2.45, 0.55)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognitive Theory of Mind</td>
<td>-1.47</td>
<td>0.60</td>
<td>-.12</td>
<td>.016</td>
</tr>
<tr>
<td></td>
<td>(-2.67, -0.08)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social anxiety</td>
<td>1.64</td>
<td>0.33</td>
<td>.45</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td>(1.01, 2.23)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>3.10</td>
<td>0.68</td>
<td>.39</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td>(1.93, 4.22)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Mood</td>
<td>-0.61</td>
<td>0.69</td>
<td>-.08</td>
<td>.370</td>
</tr>
<tr>
<td></td>
<td>(-2.10, 1.12)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant predictors of paranoia for each model are shown in bold

This analysis was repeated with the emotional variables entered at step 2 and the cognitive variables entered at step 3. This resulted in the same final model at step 3 and the addition of the cognitive variables caused a significant although small change in $R^2$ ($R^2 = 0.73, \Delta R^2 = 0.017, p = 0.039$). See appendix 11 for tables summarising the alternative model.
Mediation analyses

When the emotional variables were added into the multiple regression analysis some of the other variables (self-esteem, externalising bias) no longer significantly predicted scores on the paranoia checklist and others had less of an effect (theory of mind). Furthermore, scores on the paranoia checklist were highly correlated with scores on the measures of social anxiety in particular. It seems that the emotional variables have an effect on the relationship between cognitive variables and paranoia. It is possible that the cognitive variables predict paranoia due to the strong relationship between anxiety, especially social anxiety, and paranoia. Therefore two mediation models were tested, firstly the indirect effect of cognitive variables (cognitive theory of mind, externalising bias, and self-esteem) on paranoia through anxiety and social anxiety and secondly the indirect effect of anxiety and social anxiety on paranoia through the impact on the cognitive variables. The previously hypothesised mediation models were modified according to the results of the multiple regression analysis to exclude the variables that had no significant relationship with paranoia and to include anxiety as a possible mediator due to the significant relationship between anxiety and paranoia. Mediation analyses were conducted using the PROCESS program for SPSS (Hayes, 2014) using the method described by Hayes (2013).

![Figure 8 - Mediation Model 1](image-url)
Table 8 – Regression coefficients, Standard Errors and Model Summary for the multiple mediation model of cognitive variables on paranoia through social anxiety and anxiety (figure 8).

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Pathway M1 (Social anxiety)</th>
<th>Pathway M2 (Anxiety)</th>
<th>Pathway Y (Paranoia)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coeff.</td>
<td>SE</td>
<td>p</td>
</tr>
<tr>
<td>Theory of Mind</td>
<td>a1</td>
<td>-0.41</td>
<td>0.20</td>
</tr>
<tr>
<td>Self-Esteem</td>
<td>a1</td>
<td>-1.23</td>
<td>0.14</td>
</tr>
<tr>
<td>Externalising bias</td>
<td>a1</td>
<td>-0.50</td>
<td>0.19</td>
</tr>
<tr>
<td>Anxiety</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Anxiety</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summary</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There was a significant direct effect of theory of mind on paranoia when social anxiety and generalised anxiety were controlled for. There was a significant relationship between theory of mind and social anxiety (a1 path) but not between theory of mind and generalised anxiety (a2 path).

There was no significant direct effect of externalising bias on paranoia once social anxiety and generalised anxiety were controlled for. There was a significant relationship between externalising bias and social anxiety (a1 path) and generalised anxiety (a2 path).

There was no significant direct effect of self-esteem on paranoia. There was a significant relationship between self-esteem and social anxiety (a1 path) and generalised anxiety (a2 path).
There were significant relationships between social anxiety and paranoia ($b_1$ path) and generalised anxiety and paranoia ($b_2$ path).

The overall indirect effect of the cognitive variables (theory of mind, externalising bias and self-esteem) on paranoia through social anxiety was significant (as the bootstrapping confidence intervals did not cross zero, see table 9) suggesting a mediation relationship. There was no significant overall indirect effect of the cognitive variables on paranoia through generalised anxiety (as the bootstrapping confidence intervals cross zero) despite significant relationships between the cognitive variables and generalised anxiety and between generalised anxiety and paranoia.

<p>| Table 9 – Total Indirect Effects and bias-corrected bootstrap confidence intervals for each of the proposed pathways between the cognitive variables and paranoia through social anxiety and generalised anxiety. |
|---------------------------------|----------------|-----------------|-----------------|</p>
<table>
<thead>
<tr>
<th>Indirect Effect</th>
<th>Bootstrap SE</th>
<th>Bootstrap Lower Confidence Interval</th>
<th>Bootstrap Upper Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>-1.12</td>
<td>-2.35</td>
<td>0.20</td>
</tr>
<tr>
<td>Social anxiety</td>
<td>-0.70</td>
<td>-1.59</td>
<td>-0.01</td>
</tr>
<tr>
<td>Generalised Anxiety</td>
<td>-0.42</td>
<td>-1.25</td>
<td>0.21</td>
</tr>
</tbody>
</table>

Significant indirect effects are highlighted in bold

There is no estimate of effect size as this cannot be calculated for models with multiple independent variables (Hayes, 2013).

Mediation analysis was also conducted to test an alternative mediation model presented in figure 9.
The total direct effect of anxiety and social anxiety on paranoia, when controlling for the effect of the cognitive variables in the model, is significant and therefore the influence of social anxiety and anxiety on paranoia is not based on the relationship between the cognitive variables on paranoia.
Table 10 – Regression coefficients, Standard Errors and Model Summary for the multiple mediation model of emotional variables on paranoia through theory of mind, self-esteem and externalising bias (figure 9).

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Pathway</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M1 (Theory of Mind)</td>
<td>M2 (Externalising Bias)</td>
<td>M3 (Self-esteem)</td>
<td>Y (Paranoia)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coeff.</td>
<td>SE</td>
<td>p</td>
<td>Coeff.</td>
<td>SE</td>
</tr>
<tr>
<td>Anxiety</td>
<td>a1</td>
<td>0.004</td>
<td>0.08</td>
<td>.962</td>
<td>a2</td>
</tr>
<tr>
<td>Social Anxiety</td>
<td>a1</td>
<td>-0.06</td>
<td>0.04</td>
<td>.153</td>
<td>a2</td>
</tr>
<tr>
<td>Theory of Mind</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>b1</td>
</tr>
<tr>
<td>Externalising bias</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>b2</td>
</tr>
<tr>
<td>Self-Esteem</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>b3</td>
</tr>
<tr>
<td>Model</td>
<td>R² = 0.032</td>
<td>R² = 0.474</td>
<td>R² = 0.47</td>
<td>R² = 0.847</td>
<td></td>
</tr>
<tr>
<td>Summary</td>
<td>F(2,148) = 2.45, p = 0.09</td>
<td>F(2,148) = 21.47, p</td>
<td>F(2,148) = 64.78, p &lt; 0.000</td>
<td>F(5,145) = 73.80, p &lt; 0.001</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>
There was no evidence of an indirect effect of social anxiety and anxiety on paranoia through theory of mind, externalising bias and self-esteem as the bias-corrected bootstrap confidence intervals for the indirect effects, based on 10,000 bootstrap samples, all include zero (see table 11).

Table 11 – Indirect Effects and bias-corrected bootstrap confidence intervals for each of the proposed pathways between social anxiety and anxiety and paranoia through theory of mind, externalising bias and self-esteem.

<table>
<thead>
<tr>
<th></th>
<th>Indirect Effect</th>
<th>Bootstrap SE</th>
<th>Bootstrap Lower Confidence Interval</th>
<th>Bootstrap Upper Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>0.14</td>
<td>0.14</td>
<td>-0.14</td>
<td>0.42</td>
</tr>
<tr>
<td>Theory of Mind</td>
<td>0.08</td>
<td>0.07</td>
<td>-0.01</td>
<td>0.25</td>
</tr>
<tr>
<td>Externalising</td>
<td>0.08</td>
<td>0.08</td>
<td>-0.03</td>
<td>0.30</td>
</tr>
<tr>
<td>Bias</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Esteem</td>
<td>-0.03</td>
<td>0.13</td>
<td>-0.27</td>
<td>0.24</td>
</tr>
</tbody>
</table>

In summary the first mediation model is partially supported, there is evidence that there is an indirect relationship between theory of mind, self-esteem and externalising bias through social anxiety but not general anxiety and there is also a direct independent effect of theory of mind on paranoia. There is insufficient evidence of an indirect effect between social anxiety and generalised anxiety on paranoia through theory of mind, self-esteem and externalising bias. There is a significant direct effect of social anxiety and generalised anxiety on paranoia. See Figure 10 for the final mediation model.
DISCUSSION

This section will summarise the overall findings of the study in relation to the research questions and initial hypotheses. The findings specific to each independent variable will be discussed in relation to previous theory and in the context of previous models of paranoia. Then the implications of the study will be highlighted and the strengths and weaknesses will be discussed. Finally, areas of further work will be suggested.

Findings

As hypothesised, theory of mind, externalising bias and self-esteem all had a significant relationship with paranoia but externalising bias and self-esteem did not predict paranoia when anxiety and social anxiety were accounted for. This finding and the high correlation coefficient between social anxiety and paranoia supported the hypothesis that mediation relationships were likely. The initial proposed mediation model was adapted in
response to the results of the multiple regression analysis. As predicted in the hypotheses, this study found evidence of an indirect relationship between some cognitive variables (cognitive theory of mind, externalising bias and self-esteem) and paranoia through social anxiety. However, there was also a direct relationship between theory of mind and paranoia when controlling for social anxiety and generalised anxiety. There was no overall indirect effect of the cognitive variables through generalised anxiety although externalising bias and self-esteem both have a significant relationship with general anxiety. Therefore the initial hypotheses were partially supported. The results did not support the second proposed mediation model in which social anxiety and anxiety predict paranoia through cognitive variables.

These findings partially replicate the study by Bentall and colleagues (2009) which looked at associations between many different cognitive and affective factors and paranoia in a clinical sample. This present study also found Theory of Mind and anxiety to have a direct relationship with paranoia but did not find the associations between self-esteem, jumping to conclusions bias and low mood that Bentall and colleagues (2009) did. This study also included measures of social anxiety which was found to be highly related to paranoia.

This study provides some support for Freeman and colleagues’ threat anticipation model of paranoia (Freeman et al., 2002; Freeman 2007; Freeman & Freeman 2008; Freeman et al., 2008b) as it supports the idea that both cognitive (reasoning) and affective factors are important in the development of a persecutory belief. However, this study did not find support for the importance of all proposed reasoning factors (jumping to conclusions bias) or affective factors (low mood/depression).

The continuum theory of paranoia (Freeman, 2007; Bebbington et al., 2013) was supported by this study because similarly high levels of paranoia were found in this sample as other non-clinical samples (for example, Freeman et al., 2005) and this study provides
evidence of etiological continuity as paranoia was associated with similar factors as found in clinical samples (e.g. Bentall et al., 2009).

The role of individual factors and paranoia

**Anxiety and Social Anxiety.** As hypothesised, generalised anxiety and social anxiety predicted paranoia. These findings suggest that poor theory of mind, low self-esteem and lower levels of externalising bias lead to increased social anxiety and this in turn leads to higher levels of paranoia. This supports Freeman and colleagues idea of a hierarchy of paranoia where initial social-evaluative concerns that are shared by a large number of the population can lead to more extreme thoughts about threat to self from others (Freeman et al., 2005; Freeman, 2007). The results also support the threat-anticipation model of paranoia which emphasises the role of worry and anxiety (Freeman et al., 2002; Freeman 2007; Freeman & Freeman 2008; Freeman et al., 2008b).

Both measures of social anxiety were highly correlated with scores on the paranoia checklist (Spearman's rho correlation coefficients were 0.79 for the SPS and 0.70 for the SIAS and Pearson's r correlation coefficients were 0.86 for the SPS and 0.80 for the SIAS). Such strong correlations support the theory that social anxiety and paranoia may be part of the same continuum or construct (Freeman et al., 2005; Freeman, 2007). There is also the possibility that the measures of social anxiety and paranoia are in part measuring the same construct. This could be due to the measure of paranoia used. Some of the individual items on the paranoia checklist seem to reflect the general social-evaluative concerns of the hierarchy of paranoia and it can be argued that these items also reflect social anxiety. These items are listed below:

- 2. ‘There might be negative comments being circulated about me.’
- 7. ‘Strangers and friends look at me critically’
- 9. ‘Bad things are being said about me behind my back.’
15. 'People are laughing at me.'

It could be that the social anxiety measures are highly correlated with these particular items and this is affecting the relationships between the variables. Further analysis is needed which looks at which factors predict scores on the paranoia checklist excluding these items in order to determine whether this is the case.

Theory of Mind. This study used three measures of theory of mind/social cognition; this was done in order to overcome some of the difficulties with measuring theory of mind and the issues with the reliability and validity of individual measures. The cognitive measures of theory of mind were combined into one variable in the multiple regression and mediation analyses due to correlations between each factor. As predicted, lower levels of cognitive theory of mind were associated with higher levels of paranoia. Theory of mind was found to predict paranoia, and to have a direct relationship with paranoia even in the context of social anxiety. This supports the association between poor theory of mind and paranoia which has been found in some studies (Harrington et al., 2005) even when other potential factors related to paranoia were accounted for (Bentall et al., 2009). This is the first study to find such a link between theory of mind and paranoia in the general population. The inclusion of measures which are designed for use in the general adult population helped to overcome some of the previous methodological issues such as ceiling effects.

However, the relationship between theory of mind and paranoia does appear to be complex because there was a significant indirect effect of theory of mind on paranoia through social anxiety as well as a direct effect. This only partially supports the hypothesised mediation model 1. Higher theory of mind abilities were associated with less social anxiety in this sample. This accounted for some of the relationship between theory of mind and paranoia but a significant direct effect remained. It could be that people with poorer theory of mind abilities find it more difficult to attribute emotions and motives to others and this leads to
them feeling both more socially anxious, and more paranoid, as they misattribute negative thoughts and motives to others.

Not all the measures of theory of mind used in this study were found to be related to paranoia. Contrary to the hypotheses, the Reading the Mind in the Eyes test had no significant relationship with paranoia. The Reading the Mind in the Eyes test is a test of affective theory of mind which has been reported to be a “pure” test as it is supposed to test Theory of Mind independently from other abilities (such as I.Q.) (Baron-Cohen et al., 1997; Baron-Cohen et al., 2001; Baron-Cohen, 2004). However this claim has been disputed as it has been found to be associated with vocabulary (Petersen & Miller, 2012) and it has been argued that this test is actually a test of emotional empathy (Vellante et al., 2013). There are two possible reasons as to why there was no relationship between participants’ scores on the reading the mind in the eyes test and paranoia. Firstly it could be that the distinction between affective theory of mind and cognitive theory of mind is valid and that these are two separate constructs with distinct relationships with other factors (as suggested by Langdon et al., 2006; Shamay-Tsoory et al., 2007; Rogers et al., 2007). Secondly, it could be that the methodological issues with the reading the mind in the eyes test mean that it is not a valid measure of affective theory of mind. Further work in this area is needed in order to determine whether there is a distinction between affective and cognitive theory of mind (Bosco et al., 2009; Badgaiyan, 2009; Stratta et al., 2011). The finding that different tests of theory of mind had different relationships with paranoia emphasises the need to include more than one measure of theory of mind.

Attributional Bias. As predicted there was a significant relationship between externalising bias and paranoia, although this did not remain once affective variable were controlled for. There was a significant indirect relationship between externalising bias and paranoia through social anxiety.
Previous research and theories of paranoia would suggest that people with higher externalising bias (i.e. people who make more external attributions for negative events, also referred to as “self-serving bias”) would have higher levels of paranoia (Kinderman and Bentall, 1997; Fear et al., 1996; Kaney and Bentall, 1989) although the findings in this area have been mixed (Bentall et al., 2008) and a large-scale study which included several potential factors related to paranoia found no relationship between attributional bias and paranoia (Bentall et al., 2009).

In this study, the relationship was not in the direction expected; higher levels of externalising bias were found to be related to lower levels of paranoia, although this relationship was negated once social anxiety was accounted for in the multiple regression analysis. The results of the mediation analysis suggest that the significant negative relationship between externalising bias and social anxiety (whereby higher levels of externalising bias are related to lower social anxiety) accounts for the link between externalising bias and paranoia: there is an indirect relationship between externalising bias and paranoia through social anxiety. This finding is surprising as it could be expected that higher levels of externalising bias (i.e. blaming others for negative events) would lead to higher levels of social anxiety and paranoia as people would be expecting people to behave malevolently towards them. However, some previous research has found that people with high social anxiety show less externalising bias and are more modest due to a fear of embarrassment if they are found to be wrong; they would rather assume negative situations are their fault and avoid embarrassment (Arkin, Appleman & Burger, 1980). This link between low externalising bias and higher social anxiety could explain the unexpected relationship between lower externalising bias and higher paranoia.
There are also several methodological issues which might explain this finding. Firstly the externalising bias scale ranges from -16 to 16 with scores above 0 indicating a strong self-serving bias. It may be that the scale is not incremental and that categorising the participants into those with an externalising bias and those who don’t would have been a better way of analysing the data. Previous research has categorised participants into those who have a “self-serving bias” (Externalising bias scale scores of above 0) and those who do not and this method has found differences between the groups in terms of paranoia (Kinderman & Bentall, 1997), however several studies have not replicated this finding (Martin & Penn, 2002; McKay et al., 2005; Randall et al., 2003). Further analysis categorising participants according to whether they scored above or below zero on the externalising bias scale may help to clarify the direction of the relationship between externalising bias and paranoia. However, it could be argued that categorising people is artificial and variation in the data would be lost with this method.

Furthermore, there have been reported methodological issues with the IPSAQ whereby different classifications of the explanation provided for a situation are given by different raters (Bentall et al., 2008). For example, patients with paranoia often gave attributions for negative events which they classified as external but researchers classified as internal (Kinderman et al., 1992). One study found there was no relationship between attributions on the IPSAQ and paranoia when people with psychosis made the classification of their attributions but there was an association with paranoia and highly external-personal attributions when independent raters, who were blind to information about the participants, classified the participants’ attributions (Martin and Penn, 2002). Therefore it seems that participants may find it difficult to classify their own responses as to whether the cause is due to themselves, others, or the situation and this is a flaw in the current methods of assessing attributional style. Further analysis could be conducted where the classifications are
independently rated and then compared to the participants’ classifications to ascertain whether this is a factor in this sample.

Finally, it has been hypothesised that there are other cognitive mechanisms linked to externalising bias and that people with poorer theory of mind are more likely to show an externalising bias (Kinderman, Dunbar & Bentall, 1998; Taylor and Kinderman, 2002). However if this was the case then we could still expect to find a positive relationship between externalising bias and paranoia and there was no relationship between theory of mind and externalising bias in this sample (Spearman’s rho = 0.007; p = 0.94). Therefore it seems likely that the surprising direction of the relationship between externalising bias and paranoia is either due to issues with the measure used or due to the previously found negative relationship between social anxiety and externalising bias (Arkin et al., 1980). Re-analysis of the data using either two categories of externalising bias or using independent ratings of the responses may result in different findings and would help to clarify the reason for this finding.

The hypothesised relationship between personalising bias and paranoia was not found in this study. Previous research found those participants whose scores indicated the existence of personalising bias had higher levels of paranoia than those who did not show personalising bias (Bentall & Kinderman, 1996) and it could be expected that those participants who blamed other people rather than the situation (or luck/chance) for negative events would have higher levels of paranoia. It could be that this study did not find the expected relationship between personalising bias and paranoia because it would be more meaningful to categorise participants based on whether they scored above 0.5 on the personalising bias scale and then investigate whether this categorical variable predicted scores on the paranoia checklist. Furthermore, the other methodological issues with the IPSAQ measure discussed above may be relevant to this scale as well. Finally, it could be that this finding is valid and personalising
bias is not related to paranoia in the context of other factors. Re-analysis of the data using categories or independent raters would help to determine whether these methodological issues explain the current findings.

**Self-esteem.** As predicted, this study found a significant relationship between self-esteem and paranoia which did not remain once social anxiety was controlled for. There was an indirect relationship between self-esteem and paranoia through social anxiety. There was also a significant relationship between self-esteem and general anxiety although no overall indirect relationship between self-esteem and paranoia though general anxiety. The inclusion of social anxiety in this study is likely to be why this study did not find the direct association between self-esteem and paranoia that previous studies have found (Bentall et al., 2009; Fowler et al., 2012). Lower levels of self-esteem were related to higher levels of social anxiety and consequently higher levels of paranoia in this sample. This provides support for Freeman and colleagues’ theory that low self-esteem and paranoia are directly linked (Freeman et al., 2002; 2004; 2005c; Freeman, 2007) with paranoid ideas reflecting themes of low self-esteem. It supports the existence of “bad-me” paranoia as described by Trower and Chadwick (1995).

This finding does not support the “delusion-as-defence” theory (e.g. Bentall (2001) because this theory argues that people with paranoia have an explicit neutral level of self-esteem due to the protective function of paranoia.

**Jumping to conclusions bias.** This study did not find the hypothesised relationship between jumping to conclusions bias and paranoia. A relationship between jumping to conclusions bias and paranoia in the clinical population has been well established (Freeman, 2007) but not all studies in the general population have found such a link (Freeman et al., 2005). It may be that there is some other factor unique to clinical populations, such as the presence of other delusions or symptoms, that leads to a tendency to jump to conclusions. Alternatively, it could be that differences in jumping to conclusions bias are more subtle in
non-clinical populations and the beads task is not sensitive enough to detect such subtle
changes (Freeman, 2007). However, the responses on the beads task ranged from 1 – 10
draws, the mean was 5.37, and there appeared to be a good spread of responses so there were
not obvious ceiling effects with this population. There was also a gender difference in
jumping to conclusions bias in this sample, with men more likely to jump to conclusions and
it could be the smaller proportion of men in this sample explains the lack of a relationship
between jumping to conclusions bias and paranoia. However when only the men were
selected for analysis there was still no significant correlation between jumping to conclusions
bias and paranoia (spearman’s rho = -0.19, p=0.36) so it is unlikely that the smaller
proportion of men explains the lack of a relationship between jumping to conclusions bias
and paranoia.

This study did not support the relationship between anxiety and paranoia through
jumping to conclusions bias found in a previous study (Lincoln et al., 2010) as there was no
relationship between jumping to conclusions bias and anxiety or either measure of social
anxiety (see appendix 10) as well as no relationship between jumping to conclusions bias and
paranoia.

**Low Mood.** Unexpectedly, although there was a significant positive correlation
between depression and paranoia, this did not predict paranoia once other variables were
controlled for in the multiple regression analysis. This finding is contrary to the hypotheses
and to some previous studies (Martin and Penn, 2001; Smith et al., 2006; Fowler et al., 2012;
Freeman et al., 2012). This study does not support the claim that depression plays a causal
role in paranoia (Drake et al., 2004; Fowler et al., 2012) although the cross-sectional nature
of this study does not rule out the possibility that depression precedes paranoia (as suggested
by Fowler et al., 2012). This study used a different measure of low mood to the ones used in
the majority of previous research (BDI and HADS). It could be that this difference in
measurement explains the current failure to find a link between depression and paranoia. This seems unlikely because the measure used has good validity and reliability and is designed for use in the general population (Kroenke et al., 2009). A further potential reason for the difference in findings between this and previous studies is that this study included a number of other factors which had a relationship with paranoia that were not included in all the other studies linking low mood and paranoia (such as social anxiety) and it is in fact these factors that explain the previously found link between low mood and paranoia. Indeed in this study depression was highly correlated with generalised anxiety and both measures of social anxiety, as well as negatively correlated with self-esteem, externalising bias and theory of mind (see appendix 9). Therefore there could also be an indirect relationship between low mood and paranoia through one or more of the other variables that were found to be associated with paranoia (generalised anxiety, social anxiety, self-esteem, externalising bias, theory of mind). Further analysis could investigate this possible mediation.

**Gender.** There was no significant effect of gender on paranoia. Although there were some significant gender differences on some of the measures, these did not affect the results. This could be due to the sampling bias and the small number of men in the study which could be masking any effect of gender on paranoia. A more balanced sample is needed in order to make more firm conclusions on the effect of gender on paranoia.

**Age.** This study found that age was significantly correlated with paranoia, with people who are older being less paranoid. This supports some previous findings (van Os, 2009). However, once the influence of the other variables was controlled for, age did not predict paranoia. This sample had a good range of ages (18-70) but may not have been fully representative to the population as a whole as there were fewer older people in the sample. This could have affected the findings as there may be some age differences that were not captured in the sample.
**Substance misuse.** Drug and alcohol use were found to be related to paranoia but they did not predict paranoia once other variables were controlled for. Cannabis use has previously been linked to psychosis (van Os, 2009). This was not the focus of this study but further work looking at the role of drug and alcohol use in paranoia may be beneficial in understanding and treating paranoia.

**Strengths of the study**

There were many strengths to this study. Firstly this study builds upon previous studies by looking at many different cognitive and affective factors that previous research has found associations with paranoia. This study addressed flaws in previous research by using the most validated and reliable measures of many different cognitive and affective variables in a general population sample. The investigation of the potential mediation pathways between the factors associated with paranoia is a further strength of this study.

Studying the general population allowed for the whole range of experience of paranoid thinking to be investigated and enhanced understanding of the whole range of paranoid experiences including the more extreme and distressing experiences found in the clinical population. This approach also ruled out the potential confounding effect of other symptoms in the clinical population studies. Furthermore, it enabled a larger sample size than most studies of clinical populations due to the difficulty in recruiting and assessing people from the clinical population in research. (Bebbington et al., 2013; Freeman, 2007). This study had a sample size with enough power to detect effects that are halfway between medium and small effects (see Fritz & MacKinnon, 2007). This reduced the possibility of type II errors in interpreting the data.
Limitations of the study

It is possible that the sample is not representative of the general population, firstly 83% of the sample was female and although this study found no effect of gender on paranoia, it is possible that there are differences between males and females that were not captured by this study due to the lack of male participants. It may be that the findings of this study are primarily generalisable to women in the general population. This gender difference was probably due to the recruitment strategy as women are more likely than men to use social networking sites (ONS, 2011). In order to address this limitation, further studies should target male participants, perhaps through other websites (for example professional networking websites, such as LinkedIn, which males are more likely to use than females (ONS, 2011)), in order to achieve a more balanced sample.

Another sampling issue is that the majority of participants (96%) were White which again does not reflect British society as a whole (87% White in 2011 census, ONS) and there may be some unknown cultural factors which affect the experience of paranoia which this study could not address. Furthermore the medium by which the study was delivered may have excluded some participants. Although many people have access to the internet (77% of households, ONS, 2011) not everyone does and some sections of society are less likely to have internet access (such as those from areas of deprivation, older people, those with lower levels of education/computer literacy (ONS, 2011)) and it is therefore likely that people from these groups are under-represented in this sample.

Furthermore, it is not known if there are certain characteristics that make people more likely to participate in online surveys and if these characteristics could have affected the results of this study. Further research is needed to investigate this. This issue is not unique to online studies, there are possible factors which affect whether people are likely to participate
in any form of psychological research, but there may be other factors (such as computer literacy) specific to online research.

Despite more young people using social networking sites (91% of people aged 16-24, ONS, 2011), some older people do use social networking (18%, ONS, 2011) and the age range in this sample was broad (18-70 years old). Age was also included as a factor in the multiple regression analysis and did not predict paranoia once cognitive and affective variables were controlled for so it seems unlikely that age is a significant factor affecting the results of this study.

There was a large drop-out rate for this survey and it is not known why this was. Personal feedback from participants would suggest it may be due to the length of time it took to complete all the measures and participants either became bored or fatigued or had time pressures leading to them dropping out. There were no differences in paranoia or other characteristics between those who dropped out and those who did not. It is unknown whether people were more likely to drop out at certain points of the study due to issues with specific tests.

One final sampling issue is that although the study was well-powered, there was not enough power to detect small effects (Fritz & MacKinnon, 2007) and therefore the possibility of type II errors cannot be ruled out.

A further potential limitation is that many of the questionnaires were designed to be delivered in paper and pencil format and have not been validated for electronic use. One large-scale study has investigated the validity and reliability of electronic questionnaires by comparing the results of questionnaires delivered via paper and pencil and electronically and found no significant differences in the results from the two methods. The authors concluded electronic questionnaires are a valid method of delivery of psychological measures (Jones, Fernyhough, de Wit & Meins, 2008). A potential benefit of delivering questionnaires online
without collecting personal data is that participants are completely anonymous and there may be less influence of social desirability factors or interpreter bias when scoring the free text responses.

The cross-sectional nature of this study limits the conclusions that can be drawn about the direction of the relationships found and what factors cause paranoia. It is not possible to establish the causal direction between the study variables as the data was all collected at one point in time. It is possible to conclude that the data supports the hypothesised mediation model and are consistent with the proposed causal model but this is not a robust test of causality. It is possible that an alternative model where paranoia causes social anxiety, anxiety and theory of mind is more accurate and this cannot be refuted by this study. The causal direction of the relationships between factors could be more robustly established in a future study where the variables in the model are gathered at different points in time.

There are other variables that have been linked to the experience of paranoia which were not tested in this study. Previous research has found a link between I.Q. and paranoia with lower I.Q. predicting higher levels of paranoia in a clinical sample (Bentall et al., 2008). It was hoped that I.Q. could be measured in this study but no brief, well-validated, electronic measures of I.Q. could be found. As an alternative, years of education was included as a potential confounding variable and this was not found to be associated with paranoia in this sample. Future work developing such a measure of I.Q. would be beneficial for future studies. Similarly, it was not possible to measure executive functioning.

Further variables that have been linked to paranoia in some studies include attachment style (Pickering, Simpson & Bentall, 2008); life events and/or trauma (Freeman et al., 2002; Freeman 2007; Freeman & Freeman 2008; Freeman et al., 2008b); Emotion Regulation (Westerman, Kesting & Lincoln, 2012); Insomnia (Freeman, Pugh, Vorontsova & Southgate, 2009); Interpersonal sensitivity (feeling left out/isolated/inferior) (Freeman et al., 2003);
Social withdrawal (Fowler et al., 2012); Boredom proneness (von Gemmingen, Sullivan & Pomerantz, 2003); Context (Collip et al., 2011) and anomalous experiences (Freeman & Freeman, 2008). Future work should attempt to include measures of these other potential factors to attempt to understand their relationship with paranoia in the context of the factors associated with paranoia in this study.

A final issue is that although self-esteem was included as a cognitive variable in this study, it could be argued that this is an affective variable. Self-esteem relates to the evaluative component of self-concept (Grey-Little, Williams & Haddock, 1997) and therefore affects how people think about themselves and situations and therefore can be viewed as a bias or way of reasoning which is a cognitive factor. However, self-esteem is also closely linked to mood (Sowislo & Orth, 2013) and therefore it could be viewed as an affective variable which should have been put into the analysis with the other affective variables. This may have affected the results of the multiple regression analysis but would have led to the indirect effect of self-esteem being overlooked. It may have been informative to include a measure of a more distinctly cognitive construct such as negative cognition (negative beliefs about self and others) which it has been argued is closely related to paranoia (Fowler et al., 2012).

Implications of the study

This study has identified which key cognitive and affective factors are associated with the experience of paranoia in the general population. This can help inform our understanding of paranoia and the models used to explain it. For example, although it partially supports previous models such as the threat anticipation model of paranoia, there is disagreement about the nature of the cognitive biases. This study has attempted to overcome the previous methodological issues in theory of mind research and has found that theory of mind predicts paranoia even when other variables are controlled for. This has an implication for future models of paranoia which should include theory of mind.
Furthermore, by highlighting key factors related to paranoia, potential areas for treatment have been identified. For example, it could be that treatments which have been shown to be effective in treating social anxiety (e.g. CBT; NICE, 2013) are also effective in treating paranoia, especially lower-level paranoia which seems to be relatively common in the general population. Some research has already started in this area and CBT-based treatments for anxiety are being developed and adapted for people with paranoia (Freeman, 2011). A further potential area for treatment is to focus on improving theory of mind skills, for example teaching strategies used in helping people with autism such as social stories (Gray, 2004) which would need to be greatly adapted to suit adults from the general population but may help to develop theory of mind skills. Another potential treatment could be metacognitive therapy (MCT) which focuses on highlighting and overcoming the cognitive biases often found in people with psychosis including poor theory of mind and attributional biases (Moritz & Woodward, 2007; Moritz, Veckenstedt, Bohn, Köther, & Woodward, 2013). A modular treatment program has been developed consisting of 8 modules on attributions, jumping to conclusions, changing beliefs, empathy, memory, and low mood and self-esteem (Moritz et al., 2009) There is some evidence that this MCT program is effective and acceptable to people with psychosis (Moritz & Woodward, 2007; Moritz et al., 2013). This program could be adapted to specifically treat paranoia, and this study would suggest focusing on the theory of mind, attributions, and self-esteem modules may be beneficial. Further research delivering this method and focusing specifically paranoia is needed.

This study is normalising regarding the experience of paranoia; it supports the theory that paranoia is an extreme end of a continuum of experiences and that clinical paranoia and paranoia in the general population share similar relationships with other psychological factors.
Future work

In addition to the further work highlighted above that is needed to address the potential limitations to the study, there are also some other areas that could be addressed. It would be beneficial to repeat the study in a larger sample that reflects groups of the population that are not well-represented in this sample. This would also mean the model can be tested and refined if needed. Further analysis of this data could investigate the individual scales of the paranoia checklist to determine whether some factors have relationships with specific aspects of paranoia, such as distress caused by the ideas. The nature of the continuum paranoia could be further investigated in order to determine how social anxiety is related to paranoia and why not everyone who experiences social anxiety experiences paranoia. Potential treatments for paranoia, especially focussing on theory of mind, anxiety and social anxiety need to be developed and tested widely.

Conclusions

In conclusion, the results of this study suggest there is a significant direct relationship between theory of mind and paranoia, there is a significant direct relationship between social anxiety and paranoia and general anxiety and paranoia, and there is an indirect relationship between externalising bias and self-esteem and paranoia, through social anxiety. The findings lend some support to the threat anticipation model of paranoia (Freeman et al., 2002; Freeman 2007; Freeman & Freeman 2008; Freeman et al., 2008b) and builds upon previous studies in the clinical population (e.g. Bentall et al., 2008).
REFERENCES


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Volunteers needed to participate in an online research study from the University of Surrey.

Would you like to take part in an anonymous online study looking at the factors associated with feeling paranoid?

You don't have to feel paranoid to take part – we are looking for people with the whole range of paranoid feelings to help us with our research.

If you decide to take part you will be asked to fill in a number of questionnaires. It will take about 45 minutes to answer all the questions.

You will not be asked to give your name and your answers will be anonymous.

To find out more about the study and to take part please click on the link below: http://www.fahs.surrey.ac.uk/survey/feeling_paranoid/

For further information please do not hesitate to contact me by email.

Katie Gulliver
Trainee Clinical Psychologist

This study has received favourable opinion from the University of Surrey Faculty of Arts and Human Sciences Ethics committee.
Appendix 2 – Letter of favourable ethical opinion

Katie Gulliver  
Trainee Clinical Psychologist  
School of Psychology  
University of Surrey

20th April 2012

Dear Katie

Reference: 739-PSY-12 (with conditions)
Title of Project: The factors associated with the experience of paranoia in the general population

Thank you for your submission of the above proposal.

I am pleased to advise that this proposal has received a favourable ethical opinion from the Faculty of Arts and Human Sciences Ethics Committee provided that the following conditions are adhered to:

- In your Coversheet Q16 please specify how long research data will be retained, where and by whom.

- Information Screen: Although you indicate that people should contact their GP if they feel concerned after the study you do not inform people of the possible risks of taking part. These need to be set out so that people can make an informed decision about whether to take part.

- The Committee does not ‘approve’ studies so please use the following form of words instead: This study has been reviewed and received a favourable ethical opinion from the Ethics Committee of the Faculty of Arts and Human Sciences at the University of Surrey.

/Continued.............
• Consent Screen: Some clarifications are required: (a) participants won't know when the research will be assessed so you need to provide a date; (b) how will participants withdraw submitted data if their participation is anonymous and how would you identify them in order to exclude them from the results. (c) would you really be able to grant withdrawal up to the point of assessment as this would mean reanalysis of data prior to submission? (d) you should clarify when and how participants can withdraw their participation (e.g. closing their web browser during taking part).

• Status questions should be modified to recognise Civil Partnerships/Dissolution.

• In the consent form, it states that "I have been told about any possible distress which taking part in the project may cause me". This is not stated in the information sheet. This sentence could be deleted from the consent form, or some more information inserted into the information sheet.

• There are web links missing on the debrief sheet, screen if they do not consent, and recruitment advert. It would be good, if possible, to have a university crest on the recruitment advert.

• The online survey changes tasks/tests without introducing them properly. Some have new headings (e.g. reading the mind in the eyes) but quite a few do not (the one starting "1.Info: a woman has an unwanted pregnancy", the one starting "please choose the response to indicate the degree to which you feel the statement is characteristic", the one starting "I feel that I am a person of worth"). This may be for a reason (not highlighting the construct to be tested) but maybe it is good to indicate that this is the start of a new test. As this is a long study, if possible, an indicator of how long is left would be good (e.g. page x of y).

• In the strange stories tasks, the first one has a number out of place "Simon is a big liar. Simon's brother Jim know this, he knows that (1) Simon never tells the truth, please amend.

If there are any significant changes to your proposal which require further scrutiny, please contact the Faculty Ethics Committee before proceeding with your Project.

Yours sincerely

Dr Adrian Coyle
Chair

The conditions were met and I received the following email confirming this:

Dear Katie

Thank you for sending the relevant amended documents for your proposal. I can confirm that you have adhered to the conditions stipulated after ethical review and can now proceed with your research with apologies for the delay.

Kind regards and good luck with your project!

Julie Earl
Secretary and Administrator FAHS Ethics Committee
Appendix 3 – Information screen

Information Screen

Which factors are linked to feeling paranoid?

Introduction
My name is Katie Gulliver and I am a trainee clinical psychologist based in the Psychology Department at the University of Surrey, Guildford. This means that I already have a university degree in psychology, and am taking my studies further by now studying at post-graduate level for a doctorate qualification. As part of my training to become a clinical psychologist I am conducting this research under the supervision of Dr Clara Strauss.

Feeling paranoid is a common experience in the general population. However, it can be a problem when feelings of paranoia become more intense or longstanding. I am researching the factors that might be related to low and high levels of paranoia in the general population. This will help us to better understand why some people feel more paranoid than others and it may help us to find more effective ways of helping people when they feel paranoid.

I would like to invite you to help me with this by taking part in my study. This study is open to people with a range of paranoid feelings, including people who hardly ever feel paranoid and including people who may feel paranoid more often.

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.

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 other people. You can also contact me or my supervisor for further information and I will be happy to answer any queries. Our contact details are at the end.

Even if you agree to take part, you can withdraw from the research at any time without giving a reason.

What will I have to do?
You will be asked to complete a number of questions online. This should take around 45 minutes, so please ensure you will not be disturbed for this length of time. Some will be simple multiple choice questions, others will ask you to think about a problem or situation and to type in your answer.

How do I agree to take part?
The next screen will ask you to consent to take part in the study.

Does what I say get shared with anyone else?
Your answers are anonymous. You will not be asked to provide your name or address or any other identifying information.

The anonymous information gathered during this research study will be stored securely on a computer at the University of Surrey in accordance with the Data Protection Act 1998.
**What happens when the research study is completed?**
When I have finished the study I am hoping to write up the findings for publication in an academic journal. If you would like a copy of the study findings please send me an email and I will send you the findings when the research has finished in a couple of years’ time.

**What are the benefits of taking part in this research?**
The research provides an opportunity for you to contribute to people’s knowledge about this subject and this may lead to a better understanding of the processes underlying paranoia. While you will not see any immediate change or benefit to yourself, you will be contributing to an important piece of research that may help to improve the health treatment and services of others in the future.

**Are there any downsides of taking part?**
Some of the questions in the survey describe some sensitive issues which may cause distress if you have been affected by them. This includes topics such as unwanted pregnancy and euthanasia. It may also be distressing to consider topics such as whether people like you or can be trusted.

If you feel significantly unsettled after taking part in this study then we advise that you contact your GP to discuss your concerns. Alternatively you may wish to contact the Mind helpline (Mind is a charity devoted to supporting people who are experiencing emotional difficulties):

For confidential advice or support call their infoline on or email

**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 Dr Clara Strauss and her contact details are at the end.

**Has the research been approved by any committee?**
The study has been reviewed and received favourable ethical opinion from the Ethics Committee of the Faculty of Arts & Human Sciences 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:**
Katie Gulliver
Trainee Clinical Psychologist
Email –

I will aim to respond to your email within 48 hours.

**Supervised by:**
Dr Clara Strauss
Research Team
PsychD Clinical Psychology Programme
Email –
Appendix 4 – consent screen

I voluntarily agree to take part in the study “Which factors are linked to paranoia?”

- I have read and understood the information on the previous screen about the study.
- 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 offered support should this happen.
- I have been given the opportunity to ask the researcher questions about the research and have understood the answers to all of the questions I have asked.
- I understand that all personal data is held and processed in the strictest confidence, and in accordance with the Data Protection Act (1998).
- I am happy for the researcher to write about my answers and publish this as long as this information remains anonymous.
- I understand that I can change my mind about participating in the study at any time whilst completing the study and I don't have to give a reason for wanting to do this. I can withdraw from the study by closing my web browser at any time whilst taking part. As my information will be submitted anonymously I will not be able to withdraw once the results are submitted as the researchers will have no way of identifying me.
- 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 confirm that I have read the information screen about the study and that I have read and agreed to the statements above.

YES / NO

If Yes – the participant started the survey

If No – they were shown the following screen:
Thank you for your interest

Your response indicated that you no longer wish to participate in this study. If you need to ask us any questions, please email me.

If you would like to try again, please click the following link:

If you feel distressed in anyway by the content of the questions, you can contact your GP or you can contact one of the organisations below:

**NHS Direct**
Only accessible in the UK this telephone line is staffed 24 hours a day by nurses.

**MIND**
[www.mind.org.uk](http://www.mind.org.uk)

Mind is the leading UK mental health charity offering advice and support for people experiencing emotional distress. For confidential advice or support call their infoline or email.
Thank you for participating in this research project!

Interested in what this study was about?

Research has found that many people feel paranoid from time to time and that feelings of paranoia range from low to high in the general population. This study was interested in looking at what makes some people more likely to have paranoid thoughts and feelings than others. The questionnaires used in this study all measure different factors that have been linked to paranoia in other studies. This study will help us to have a better understanding of why some people feel more paranoid than others and this may help us to develop more effective therapies for helping people when they begin to struggle with intense feelings of paranoia.

If you are interested in knowing more about the results of this study please email and I will email you the results.

If you feel distressed in anyway by the content of the questions, you can contact your GP or you can contact one of the organisations below:

NHS Direct 0845 46 47
Only accessible in the UK this telephone line is staffed 24 hours a day by nurses.

MIND
www.mind.org.uk
Mind is the leading UK mental health charity offering advice and support for people experiencing emotional distress. For confidential advice or support call their infoline on or email

If you know anyone who would be interested in participating in this research please suggest they visit our website:

Please feel free to contact my supervisor if you have any concerns about this study:
Dr Clara Strauss
Research Team
PsychD Clinical Psychology Programme
Email –
Appendix 6 – Measures used in the order presented in the survey

a) Demographics Questionnaire

To start, could you tell us your:

Age:  

Sex:

How would you describe yourself (tick one or more):

☐ Married
☐ Living with a partner
☐ Divorced
☐ Widowed
☐ Separated
☐ Single

How would you describe yourself (tick one):

☐ White
☐ Black British
☐ Black African
☐ Black Caribbean
☐ Indian
☐ Pakinstani
☐ Bangladeshi
☐ Chinese
☐ Other ________________________________

Are you?

☐ Employed
☐ Unemployed seeking work
☐ Student
☐ Retired
☐ Home manager
☐ On sick leave

If you are employed, can you please describe your work?

If you are not employed now, what was your last job?

What is your highest level of academic achievement?
b) Paranoia Checklist

Many people have thoughts, worries, or suspicions that others may be trying to upset them. It is a common experience, just as people can sometimes feel anxious or low in mood. Below are listed some of the thoughts that people report. For each one please indicate how often you may have the thought, how strongly you believe it, and how upsetting the experience is for you.

I sometimes get the thought that:

1. 'I need to be on my guard against others.'
   Rarely Once a month Once a week Several times a week At least once a day
   Do not believe it Believe it a little Believe it somewhat Believe it a lot Absolutely believe it
   Not distressing A little distressing Somewhat distressing Moderately distressing Very distressing

2. 'There might be negative comments being circulated about me.'
   Rarely Once a month Once a week Several times a week At least once a day
   Do not believe it Believe it a little Believe it somewhat Believe it a lot Absolutely believe it
   Not distressing A little distressing Somewhat distressing Moderately distressing Very distressing

3. 'People deliberately try to irritate me.'
   Rarely Once a month Once a week Several times a week At least once a day
   Do not believe it Believe it a little Believe it somewhat Believe it a lot Absolutely believe it
   Not distressing A little distressing Somewhat distressing Moderately distressing Very distressing

4. 'I might be being observed or followed.'
   Rarely Once a month Once a week Several times a week At least once a day
   Do not believe it Believe it a little Believe it somewhat Believe it a lot Absolutely believe it
   Not distressing A little distressing Somewhat distressing Moderately distressing Very distressing

5. 'People are trying to make me upset.'
   Rarely Once a month Once a week Several times a week At least once a day
   Do not believe it Believe it a little Believe it somewhat Believe it a lot Absolutely believe it
   Not distressing A little distressing Somewhat distressing Moderately distressing Very distressing

6. 'People communicate about me in subtle ways'
   Rarely Once a month Once a week Several times a week At least once a day
   Do not believe it Believe it a little Believe it somewhat Believe it a lot Absolutely believe it
   Not distressing A little distressing Somewhat distressing Moderately distressing Very distressing

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7. 'Strangers and friends look at me critically.'
    Rarely  Once a month  Once a week  Several times a week  At least once a day
    Do not believe it  Believe it a little  Believe it somewhat  Believe it a lot  Absolutely believe it
    Not distressing  A little distressing  Somewhat distressing  Moderately distressing  Very distressing

8. ‘People might be hostile towards me.’
    Rarely  Once a month  Once a week  Several times a week  At least once a day
    Do not believe it  Believe it a little  Believe it somewhat  Believe it a lot  Absolutely believe it
    Not distressing  A little distressing  Somewhat distressing  Moderately distressing  Very distressing

9. ‘Bad things are being said about me behind my back.’
    Rarely  Once a month  Once a week  Several times a week  At least once a day
    Do not believe it  Believe it a little  Believe it somewhat  Believe it a lot  Absolutely believe it
    Not distressing  A little distressing  Somewhat distressing  Moderately distressing  Very distressing

10. ‘Someone I know has bad intentions towards me’
    Rarely  Once a month  Once a week  Several times a week  At least once a day
    Do not believe it  Believe it a little  Believe it somewhat  Believe it a lot  Absolutely believe it
    Not distressing  A little distressing  Somewhat distressing  Moderately distressing  Very distressing

11. ‘I have a suspicion that someone has it in for me.’
    Rarely  Once a month  Once a week  Several times a week  At least once a day
    Do not believe it  Believe it a little  Believe it somewhat  Believe it a lot  Absolutely believe it
    Not distressing  A little distressing  Somewhat distressing  Moderately distressing  Very distressing

12. ‘People would harm me if given an opportunity.’
    Rarely  Once a month  Once a week  Several times a week  At least once a day
    Do not believe it  Believe it a little  Believe it somewhat  Believe it a lot  Absolutely believe it
    Not distressing  A little distressing  Somewhat distressing  Moderately distressing  Very distressing

13. ‘Someone I don’t know has bad intentions towards me.’
    Rarely  Once a month  Once a week  Several times a week  At least once a day
    Do not believe it  Believe it a little  Believe it somewhat  Believe it a lot  Absolutely believe it
    Not distressing  A little distressing  Somewhat distressing  Moderately distressing  Very distressing

14. ‘There is a possibility of a conspiracy against me.’
    Rarely  Once a month  Once a week  Several times a week  At least once a day
<table>
<thead>
<tr>
<th>Believe it a little</th>
<th>Believe it somewhat</th>
<th>Believe it a lot</th>
<th>Absolutely believe it</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not believe it</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not distressing</td>
<td>A little distressing</td>
<td>Somewhat distressing</td>
<td>Moderately distressing</td>
</tr>
</tbody>
</table>

15. 'People are laughing at me.'
Rarely   Once a month   Once a week   Several times a week   At least once a day

<table>
<thead>
<tr>
<th>Believe it a little</th>
<th>Believe it somewhat</th>
<th>Believe it a lot</th>
<th>Absolutely believe it</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not believe it</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not distressing</td>
<td>A little distressing</td>
<td>Somewhat distressing</td>
<td>Moderately distressing</td>
</tr>
</tbody>
</table>

16. 'I am under threat from others.'
Rarely   Once a month   Once a week   Several times a week   At least once a day

<table>
<thead>
<tr>
<th>Believe it a little</th>
<th>Believe it somewhat</th>
<th>Believe it a lot</th>
<th>Absolutely believe it</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not believe it</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not distressing</td>
<td>A little distressing</td>
<td>Somewhat distressing</td>
<td>Moderately distressing</td>
</tr>
</tbody>
</table>

17. 'I can detect coded messages about me in the press/TV/radio'
Rarely   Once a month   Once a week   Several times a week   At least once a day

<table>
<thead>
<tr>
<th>Believe it a little</th>
<th>Believe it somewhat</th>
<th>Believe it a lot</th>
<th>Absolutely believe it</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not believe it</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not distressing</td>
<td>A little distressing</td>
<td>Somewhat distressing</td>
<td>Moderately distressing</td>
</tr>
</tbody>
</table>

18. 'My actions and thoughts might be controlled by others.'
Rarely   Once a month   Once a week   Several times a week   At least once a day

<table>
<thead>
<tr>
<th>Believe it a little</th>
<th>Believe it somewhat</th>
<th>Believe it a lot</th>
<th>Absolutely believe it</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not believe it</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not distressing</td>
<td>A little distressing</td>
<td>Somewhat distressing</td>
<td>Moderately distressing</td>
</tr>
</tbody>
</table>
c) **Test of complex social cognition**

1. Info: A woman has an unwanted pregnancy. She decides not to have an abortion.

   Question: Why might she decide this?

   Info: She is a Roman Catholic. The Catholic Church strongly prohibits abortion.

   Question: What would you advise and how would you feel in this situation if you shared the woman's belief that abortion is wrong, and were a friend of hers?

   Question: Do you consider abortion to be morally wrong?

2. Info: Joe, a 14 year old boy, stole some money out of his father's wallet and bought a computer game with it. When asked about the money he denied knowing anything about it.

   Question: Is Joe wrong for taking the money? Why?

   Info: Joe's father had promised that he could buy the computer game if he earned the money himself, but later changed his mind and took the money Joe had earned.

   Question: In light of this information, does this change your view about whether Joe is right or wrong for taking the money? Why?

3. Info: A goalkeeper tries to dribble with the ball outside his box when he could have passed it to one of his teammates. An opposing player tackles him, takes the ball and taps it into the empty goal whilst mocking the goalkeeper. As a result, the goalkeeper's team fail to win a major tournament.

   Question: What would you have thought and felt if this had happened in your team? What would you have wanted to happen to the goalkeeper?

   Info: By the beginning of the next season most of the fans forgave the goalkeeper for this mistake and still viewed him as a good member of the team.

   Question: Why do you think the fans forgave him?

14. Info: A man is suffering from a terminal illness and is in a lot of pain and discomfort. He has asked his wife to help him die. His wife became very upset and angry and refuses to help her husband.

   Question: Why might she have become upset and angry? Why might she have refused to help?

   Info: The wife is a Christian and believes that only God should end life when He sees fit.

   Question: What would you advise if you shared the woman's belief that the time of death is God-given and should not be brought forward by human intervention, and you were a friend of hers? What would you feel in this situation (if you shared her belief)?

   Question: Do you consider euthanasia to be morally wrong?
d) **Social phobia scale**

Please circle the number to indicate the degree to which you feel the statement is characteristic or true for you. The rating scale is as follows:

<table>
<thead>
<tr>
<th>Number</th>
<th>Statement</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I become anxious if I have to write in front of other people</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>I become self-conscious when using public toilets</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>I can suddenly become aware of my own voice and of others listening to me</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>I get nervous that people are staring at me as I walk down the street</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>I fear I may blush when I am with others</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>I feel self-conscious if I have to enter a room where others are already seated</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>I worry about shaking or trembling when I'm watched by other people</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>I would get tense if I had to sit facing other people on a bus or a train</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>I get panicky that others to be faint sick or ill</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>I would find it difficult to drink something if in a group of people</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>11</td>
<td>It would make me feel self-conscious to eat in front of a stranger at a restaurant</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>I am worried people will think my behaviour odd</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>I would get tense if I had to carry a tray across a crowded cafeteria</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>I worry I'll lose control of myself in front of other people</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>I worry I might do something to attract the attention of others</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>When in an elevator I am tense if people look at me</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>I can feel conspicuous standing in a queue</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>I get tense when I speak in front of other people</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>I worry my head will shake or nod in front of others</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>I feel awkward and tense if I know people are watching me</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
c) **Social Interaction Anxiety Scale (SIAS)**

**Instructions:** For each item, please circle the number to indicate the degree to which you feel the statement is characteristic or true for you. The rating scale is as follows:

0 = **Not at all** characteristic or true of me.
1 = **Slightly** characteristic or true of me.
2 = **Moderately** characteristic or true of me.
3 = **Very** characteristic or true of me.
4 = **Extremely** characteristic or true of me.

1. I get nervous if I have to speak with someone in authority (teacher, boss, etc.). 0 1 2 3 4
2. I have difficulty making eye contact with others. 0 1 2 3 4
3. I become tense if I have to talk about myself or my feelings. 0 1 2 3 4
4. I find it difficult to mix comfortably with the people I work with. 0 1 2 3 4
5. I find it easy to make friends my own age. 0 1 2 3 4
6. I tense up if I meet an acquaintance in the street. 0 1 2 3 4
7. When mixing socially, I am uncomfortable. 0 1 2 3 4
8. I feel tense if I am alone with just one other person. 0 1 2 3 4
9. I am at ease meeting people at parties, etc. 0 1 2 3 4
10. I have difficulty talking with other people. 0 1 2 3 4
11. I find it easy to think of things to talk about. 0 1 2 3 4
12. I worry about expressing myself in case I appear awkward. 0 1 2 3 4
13. I find it difficult to disagree with another's point of view. 0 1 2 3 4
14. I have difficulty talking to attractive persons of the opposite sex. 0 1 2 3 4
15. I find myself worrying that I won't know what to say in social situations. 0 1 2 3 4
16. I am nervous mixing with people I don't know well. 0 1 2 3 4
17. I feel I'll say something embarrassing when talking. 0 1 2 3 4
18. When mixing in a group, I find myself worrying I will be ignored. 0 1 2 3 4
19. I am tense mixing in a group. 0 1 2 3 4
20. I am unsure whether to greet someone I know only slightly. 0 1 2 3 4

**Patient**

Name:

Date: ____________________
f) Rosenberg's Self-Esteem Scale

<table>
<thead>
<tr>
<th>STATEMENT</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I feel that I am a person of worth, at least on an equal plane with others.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>2. I feel that I have a number of good qualities.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>3. All in all, I am inclined to feel that I am a failure.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>4. I am able to do things as well as most other people.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>5. I feel I do not have much to be proud of.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>6. I take a positive attitude toward myself.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>7. On the whole, I am satisfied with myself.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>8. I wish I could have more respect for myself.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>9. I certainly feel useless at times.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>10. At times I think I am no good at all.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Scores are calculated as follows:

- For items 1, 2, 4, 6, and 7:
  - Strongly agree = 3
  - Agree = 2
  - Disagree = 1
  - Strongly disagree = 0

- For items 3, 5, 8, 9, and 10 (which are reversed in valence):
  - Strongly agree = 0
  - Agree = 1
  - Disagree = 2
  - Strongly disagree = 3

The scale ranges from 0-30. Scores between 15 and 25 are within normal range; scores below 15 suggest low self-esteem.
### g) PHQ-8

**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>1 Little interest or pleasure in doing things</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2 Feeling down, depressed, or hopeless</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3 Trouble falling or staying asleep, or sleeping too much</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4 Feeling tired or having little energy</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5 Poor appetite or overeating</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6 Feeling bad about yourself — or that you are a failure or have let yourself or your family down</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7 Trouble concentrating on things, such as reading the newspaper or watching television</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Moving or speaking so slowly that other people could have noticed?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8 Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

A11 – PHQ8 total score

### h) GAD-7

**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>1 Feeling nervous, anxious or on edge</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2 Not being able to stop or control worrying</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3 Worrying too much about different things</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4 Trouble relaxing</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5 Being so restless that it is hard to sit still</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6 Becoming easily annoyed or irritable</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7 Feeling afraid as if something awful might happen</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

A12 – GAD7 total score
i) **Strange Stories**

Simon is a big liar. Simon’s brother Jim knows this, he knows that (1) Simon never tells the truth! Now yesterday Simon stole Jim’s ping-pong paddle, and Jim knows that Simon has hidden it somewhere, though he can’t find it. He’s very cross. So he finds Simon and he says, “Where is my ping-pong paddle? You must have hidden it either in the cupboard or under your bed?” Simon tells him the paddle is under his bed.

**Q:** Why will Jim look in the cupboard for the paddle?

**Scoring key**

- 2 points – reference to Jim knowing Simon lies
- 1 point – reference to fact (that’s where it really is, Simon’s a big liar) or Simon hiding it without reference to implications of lying
- 0 points – reference to general nonspecific information (because he looked everywhere else)

Brian is always hungry. Today at school it is his favourite meal – sausages and beans. He is a very greedy boy, and he would like to have more sausages than anybody else, even though his mother will have made him a lovely meal when he gets home! But everyone is allowed two sausages and not more. When it is Brian’s turn to be served, he says, “Oh, please can I have four sausages, because I won’t be having any dinner when I get home!”

**Q:** Why does Brian say this?

**Scoring key**

- 2 points – reference to fact that he’s trying to elicit sympathy, being deceptive
- 1 point – reference to his state (greedy), outcome (to get more sausages) or factually incorrect
- 0 points – reference to general nonspecific information

Jill wanted to buy a kitten, so she went to see Mrs. Smith, who had lots of kittens she didn’t want. Now Mrs. Smith loved the kittens, and she wouldn’t do anything to harm them, though she couldn’t keep them all herself. When Jill visited she wasn’t sure she wanted one of Mrs. Smith’s kittens, since they were all males and she had wanted a female. But Mrs. Smith said, “If no one buys the kittens I’ll just have to drown them!”

**Q:** Why did Mrs. Smith say that?

**Scoring key**

- 2 points – reference to persuasion, manipulating feelings, trying to induce guilt/pity
- 1 point – reference to outcome (to sell them or get rid of them in a way which implies not drowning)
- 0 points – reference to general knowledge or dilemma without realisation that the statement was not true (she’s a horrible woman)

A burglar who has just robbed a shop is making his getaway. As he is running home, a policeman on his beat sees him drop his glove. He doesn’t know the man is a burglar he just wants to tell him he dropped his glove. But when the policeman shouts out to the burglar, “Hey, you! Stop!”, the burglar turns round, sees the policeman and gives himself up. He puts his hands up and admits that he did the break-in at the local shop.

**Q:** Why did the burglar do that?

**Scoring key**

- 2 points – reference to the belief that the policeman knew that he’d burgled the shop
- 1 point – reference to something factually correct in story
- 0 points – factually incorrect/irrelevant answer
INSTRUCTIONS

Please read the statements on the following pages. For each statement please try to vividly imagine that event happening to you. Then try to decide what was the main cause of the event described in each statement. Please write the cause you have thought of in the space provided. Then tick the appropriate letter (a, b or c) according to whether the cause is:

a) Something about you
b) Something about another person (or a group of people)
c) Something about the situation (circumstances or chance)

It might be quite difficult to decide which of these options is exactly right. In this case, please pick **one option**, the option which **best** represents your opinion. Please pick **only one** letter in each case.

Thank you for your time and co-operation.
1. A friend gave you a lift home.
What caused your friend to give you a lift home?
(Please write down the one major cause)

Is this:

a. Something about you?
b. Something about the other person or other people?
c. Something about the situation (circumstances or chance)?

2. A friend talked about you behind your back.
What caused your friend to talk about you behind your back?
(Please write down the one major cause)

Is this:

a. Something about you?
b. Something about the other person or other people?
c. Something about the situation (circumstances or chance)?

3. A friend said that he(she) has no respect for you.
What caused your friend to say that he(she) has no respect for you?
(Please write down the one major cause)

Is this:

a. Something about you?
b. Something about the other person or other people?
c. Something about the situation (circumstances or chance)?

4. A friend helped you with the gardening.
What caused your friend to help you with the gardening?
(Please write down the one major cause)

Is this:

a. Something about you?
b. Something about the other person or other people?
c. Something about the situation (circumstances or chance)?
5. A friend thinks you are trustworthy.
What caused your friend to think you are trustworthy?
(Please write down the one major cause)

Is this:

a. Something about you?
b. Something about the other person or other people?
c. Something about the situation (circumstances or chance)?
9. A friend thinks you are unfriendly.

What caused your friend to think that you are unfriendly?
(Please write down the one major cause)

Is this:

a. Something about you?
b. Something about the other person or other people?
c. Something about the situation (circumstances or chance)?
13. **A friend thinks you are dishonest.**

What caused your friend to think you are dishonest?
(Please write down the one major cause)

Is this:

a. Something about you?
b. Something about the other person or other people?
c. Something about the situation (circumstances or chance)?

14. **A friend spent some time talking to you.**

What caused your friend to spend time talking with you?
(Please write down the one major cause)

Is this:

a. Something about you?
b. Something about the other person or other people?
c. Something about the situation (circumstances or chance)?

15. **A friend thinks you are clever.**

What caused your friend to think you are clever?
(Please write down the one major cause)

Is this:

a. Something about you?
b. Something about the other person or other people?
c. Something about the situation (circumstances or chance)?

16. **A friend refused to help you with a job.**

What caused your friend to refuse to help you with the job?
(Please write down the one major cause)

Is this:

a. Something about you?
b. Something about the other person or other people?
c. Something about the situation (circumstances or chance)?
17. A friend thinks you are sensible.

What caused your friend to think that you were sensible?
(Please write down the one major cause)

Is this:

a. Something about you?
b. Something about the other person or other people?
c. Something about the situation (circumstances or chance)?

18. A friend thinks you are unfair.

What caused your friend to think that you are unfair?
(Please write down the one major cause)

Is this:

a. Something about you?
b. Something about the other person or other people?
c. Something about the situation (circumstances or chance)?

19. A friend said that he(she) dislikes you.

What caused your friend to say that he(she) dislikes you?
(Please write down the one major cause)

Is this:

a. Something about you?
b. Something about the other person or other people?
c. Something about the situation (circumstances or chance)?

20. A friend rang to enquire about you.

What caused your friend to ring to enquire about you?
(Please write down the one major cause)

Is this:

a. Something about you?
b. Something about the other person or other people?
c. Something about the situation (circumstances or chance)?
21. A friend ignored you

What caused your friend to ignore you?
(Please write down the one major cause)

Is this:

a. Something about you?

b. Something about the other person or other people?

c. Something about the situation (circumstances or chance)?

22. A friend said that she/he admires you.

What caused your friend to say that she/he admired you?
(Please write down the one major cause)

Is this:

a. Something about you?

b. Something about the other person or other people?

c. Something about the situation (circumstances or chance)?

23. A friend said that he/she finds you boring.

What caused your friend to say that he/she finds you boring?
(Please write down the one major cause)

Is this:

a. Something about you?

b. Something about the other person or other people?

c. Something about the situation (circumstances or chance)?

24. A friend said that she/he resents you.

What caused your friend to say that she/he resents you?
(Please write down the one major cause)

Is this:

a. Something about you?

b. Something about the other person or other people?

c. Something about the situation (circumstances or chance)?
25. A friend visited you for a friendly chat.
What caused your friend to visit you for a chat?
(Please write down the one major cause)

Is this:

a. Something about you?
b. Something about the other person or other people?
c. Something about the situation (circumstances or chance)?

26. A friend believes that you are honest
What caused your friend to believe that you are honest?
(Please write down the one major cause)

Is this:

a. Something about you?
b. Something about the other person or other people?
c. Something about the situation (circumstances or chance)?

27. A friend betrayed the trust you had in her.
What caused your friend to betray your trust?
(Please write down the one major cause)

Is this:

a. Something about you?
b. Something about the other person or other people?
c. Something about the situation (circumstances or chance)?

28. A friend ordered you to leave.
What caused your friend to order you to leave?
(Please write down the one major cause)

Is this:

a. Something about you?
b. Something about the other person or other people?
c. Something about the situation (circumstances or chance)?
29. A friend said that she(he) respects you.

What caused your friend to say that she(he) respects you?
(Please write down the one major cause)

Is this:

a. Something about you?
b. Something about the other person or other people?
c. Something about the situation (circumstances or chance)?

30. A friend thinks you are stupid.

What caused your friend to think that you are stupid?
(Please write down the one major cause)

Is this:

a. Something about you?
b. Something about the other person or other people?
c. Something about the situation (circumstances or chance)?

31. A friend said that he(she) liked you.

What caused your friend to say that he(she) liked you?
(Please write down the one major cause)

Is this:

a. Something about you?
b. Something about the other person or other people?
c. Something about the situation (circumstances or chance)?

32. A neighbour invited you in for a drink.

What caused your friend to invite you in for a drink?
(Please write down the one major cause)

Is this:

a. Something about you?
b. Something about the other person or other people?
c. Something about the situation (circumstances or chance)?
INTERNAL, PERSONAL, AND SITUATIONAL ATTRIBUTION QUESTIONNAIRE
SCORING KEY

Each item describes the action of an actor towards a target person. Subjects have to choose one of three possible explanations for each action.

a. An internal attribution
b. An external, personal, attribution
c. An external, situational, attribution

Positive: 1, 4, 5, 7, 8, 11, 14, 15, 17, 20, 22, 25, 26, 29, 31, 32
Negative: 2, 3, 6, 9, 10, 12, 13, 16, 18, 19, 21, 23, 24, 27, 28, 30
k) Beads task

There are two jars: A mainly orange jar containing 85 orange and 15 black beads and a mainly black jar containing 85 black and 15 orange beads.

The beads have been mixed up in the jar.

One of the jars has been chosen at random. Beads will be drawn from the selected jar and shown. The beads will always come from the same jar and will be replaced afterwards so that the proportions stay the same.

It is your job to decide from which jar the beads have come. You may see a maximum of 10 beads before making a decision. After a bead has been shown to you, you can ask for another bead or you can decide that you know which jar has been chosen, and you can click whether it is the Mainly Orange Jar or the Mainly Black Jar. Only decide when you are certain. You will now see the first bead.
1) **Reading the mind in the eyes test**

**Adult Eyes Instructions**

For each set of eyes, choose and circle which word best describes what the person in the picture is thinking or feeling. You may feel that more than one word is applicable but please choose just one word, the word which you consider to be most suitable. Before making your choice, make sure that you have read all 4 words. You should try to do the task as quickly as possible but you will not be timed.

**Practice Question - example**

```
jealous       panicked

arrogant      hateful
```

[Image of eyes]
m) Optional last questions

We would now like to ask you some optional questions about your experiences that will help with our research. Your responses to these questions are anonymous and you do not have to answer them if you don't want to.

- Have you ever needed to drink a significant amount of alcohol to get you through the day?
  Yes
  No
  - If Yes; how often have you felt this way?
    Hardly ever
    Rarely
    Quite frequently
    Most days

- Have you ever used drugs or inhaled substances to get high, feel elated or get a "buzz"?
  Yes
  No
  - If Yes; how often have you felt this way?
    Hardly ever
    Rarely
    Quite frequently
    Most days

- Do you have a diagnosis of a mental health condition (e.g. Depression, Schizophrenia)
  No
  Yes;
  - If yes What is your diagnosis?
Appendix 7 – review of existing measures of theory of mind

"Theory of Mind" (ToM), "mentaling" or "perspective taking" has been described as the everyday ability to attribute thoughts and feelings to others and an understanding of how others' behaviours are motivated by their beliefs, thoughts, feelings and intentions (Abell, Happe and Frith, 2000; Wellman, 1990; Premack and Woodruff, 1978). The first tests of theory of mind abilities were the false belief test, also known as the "Sally-Anne" test (e.g. Baron-Cohen, Leslie and Frith, 1985). This test can be passed by normally developing children by about 4 years of age (Baron-Cohen et al., 1985).

However, typically developing children and adults still show differences in their Theory of Mind and social cognitive abilities (e.g. Meins, Fernyhough, Fradley & Tuckey, 2001). Also, false belief tests can be passed by people with Asperger syndrome and High Functioning Autism yet fail to capture the real-life difficulties faced by people with these disorders (Abell et al., 2000). For these reasons several "advanced" tests of theory of mind have been developed that try to capture the essence of real-life situations where theory of mind skills may be used.

Some advanced tests have focused on what has been called "Second-Order" Theory of Mind; the ability to reason about what one person thinks about another person's thoughts (Perner and Wimmer, 1985; Bowler, 1992). Bowler (1992) developed a test of this kind in which the participant is told stories involving an everyday scenario and asked a series of questions about what has happened. The key question asks the respondent to justify their answer to a question about the belief of another person. If they use the form "she doesn't know that he knows", a mental state embedded within a mental state, they are judged to have second order theory of mind. People with Asperger syndrome and High functioning autism typically pass this test but do not use mental states terms in their answers to the justification question. In typically developing people this test has ceiling effects and therefore is not sensitive to more subtle differences in theory of mind abilities in adults (Kaland, Meller-Nielson, Callesen, Mortensen, Gottlieb and Smith, 2002). For this reason, more complex tests of theory of mind have been developed.

Other tests of advanced theory of mind skills use stories based on everyday life situations to measure theory of mind skills in a more naturalistic context (Happe, 1994; Kaland et al., 2002). These involve story comprehension where key questions were either concerned with the protagonist's mental or physical states. Happe's (1994) Strange Stories task consists of 24 short vignettes with 12 different types of and 2 questions for each story; a comprehension question and a test question. The Stories from Everyday Life test (Kaland et al., 2002) is modelled on Happe's (1994) Strange Stories but is contextually more complex. It comprises of 26 vignettes designed to test participants' abilities to make inferences about physical and mental states in a story context (Kaland et al., 2002). It has been found that these tests are sensitive to differences in theory of mind abilities in adults (Happe, 1994; Kaland et al., 2002). The use of naturalistic stories seems to be a useful model to test complex social cognition.

Nevertheless, stories still do not capture the complexity of processing that is required in real-life situations. To make a test as naturalistic as possible films including the Movie for Social Cognition (MASC) (Dziobek et al., 2006) showing characters in social situations have also been developed to approximate the demands of real-life mentalising and have been found to be sensitive to differences in mentalising abilities in real-life situations (Heavey, Phillips,
Baron-Cohen and Rutter, 2000; Dziobek et al., 2006). The MASC test also allows for the quantification of aberrant mentalising strategies like over-mentalising or under-mentalising (Montag et al., 2011). This test has been used in a clinical sample of people diagnosed with schizophrenia (Montag et al., 2011) but not to look at the relationship between theory of mind and paranoia.

However, tasks involving story or film comprehension involve quite complex cognitive processes and it could be that difficulties on these sorts of tasks reflect general cognitive deficits rather than a pure Theory of Mind deficit (Kaland et al., 2002). To overcome this problem, tests have been developed that aim to test theory of mind abilities selectively, minimising the contribution of other cognitive processes. One such test is Abell, Happe and Frith’s (2000) animations test which uses animations to elicit participants’ attributions of actions, interactions and mental states (see also Castelli, Happe, Frith and Frith, 2000; Castelli, Frith, Happe and Frith, 2002). The test consists of 33-45s animations showing two triangles moving about on a white background; the participant is then asked to say what happened in the animation. This test has been found to be sensitive to differences in Theory of Mind abilities in the adult populations and in people with Autistic spectrum disorders (Abell et al., 2000; Castelli et al., 2000). It has been used to test differences in brain activity when using theory of mind skills (Castelli et al., 2002).

Another test of “pure” theory of mind has been used by Baron-Cohen and colleagues (Baron-Cohen, Jolliffe, Mortimore and Robertson, 1997; Baron-Cohen, Wheelwright and Hill, 2001; Baron-Cohen, 2004). This uses photographs of a person’s eyes and requires participants to make inferences based on this information alone. A photograph is presented alongside a set of four adjectives and the participant has to select the word that best describes the person’s expression based on the eyes alone. This test is sensitive to subtle theory of mind differences in adults and adolescents (Baron-Cohen et al., 1997; Baron-Cohen et al., 2001; Baron-Cohen, 2004). However, it can be argued that the Reading the Mind in the Eyes test is in fact a measure of emotion recognition or emotional empathy rather than theory of mind and it has been correlated with measures of empathy (e.g. Vellante et al., 2013). There are very few published studies with the psychometric properties for this test meaning it is not clear whether it is a “pure” test of theory of mind as described. Furthermore, one study has found a relationship between scores on the eye test and verbal IQ suggesting it is not as free from contributions of other variables as first suggested (Petersen & Miller, 2012). However, it is one of the few tests that is sensitive to differences in adults and because of this it has been used in over 250 studies into theory of mind in the general adult population (Petersen & Miller, 2012). Information conveyed by eyes is not the only source of differences in theory of mind abilities; Kleinman, Marciano and Ault (2001) and Rutherford, Baron-Cohen and Wheelwright (2002) also found differences in determinations of a person’s feelings from voice intonation. Table one summarises current tests of Theory of Mind.

Although typically developing people have well developed theory of mind skills by the time they reach adulthood, there is substantial variation in the spontaneous use of these theory of mind skills to describe, explain and interpret the behaviour of others (Charman & Shmueli-Goetz, 1998). Large variation in ‘mind-mindedness’, or the proclivity to treat others as agents with thoughts, feelings and beliefs, has been found (Meins et al., 2001). For these reasons, a novel test that measures people’s use of their theory of mind or perspective taking skills in complex social situations and dilemmas would be valuable to research in this field. This is what led to the development of the test of social cognition used in this study.
It has been suggested that there are several different aspects of theory of mind or types of theory of mind which may or may not be related. Many authors have argued, for instance, that there is a distinction between cognitive and affective theory of mind (Langdon et al., 2006; Shamay-Tsoory et al., 2007). Cognitive Theory of Mind is the ability to think about the mental states of others (perspective taking) whereas affective theory of mind is the ability to read the emotional states of others more intuitively (more akin to emotional empathy). Some authors have argued that these are distinct concepts and one is not necessary for the other (Rogers et al., 2007). However it is not clear if such a distinction is valid due to lack of supportive research such as factor analyses (Bosco et al., 2009; Badgaiyan, 2009).

Table 12 – Current tests of Theory of Mind

<table>
<thead>
<tr>
<th>Test</th>
<th>Method employed</th>
<th>Authors</th>
<th>Year published</th>
</tr>
</thead>
<tbody>
<tr>
<td>False Belief Test</td>
<td>Acted story</td>
<td>Baron-Cohen, Leslie and Frith, Bowler,</td>
<td>1985</td>
</tr>
<tr>
<td>Second-Order Theory of Mind test</td>
<td>Story, read to participants</td>
<td>Happe, Kalland et al.,</td>
<td>1992</td>
</tr>
<tr>
<td>Strange-stories test</td>
<td>Story vignettes</td>
<td>Happe, Kalland et al.,</td>
<td>1994</td>
</tr>
<tr>
<td>Stories from everyday life Hinting Test</td>
<td>Story vignettes regarding hints</td>
<td>Corcoran et al.; Greig et al (American version)</td>
<td>1995</td>
</tr>
<tr>
<td>Theory of Mind Picture sequencing task</td>
<td>Cartoon picture stories which have to be placed in logical order plus questionnaire</td>
<td>Sarfati et al.</td>
<td>2004</td>
</tr>
<tr>
<td>Comic-strip task: attribution of intentions to others</td>
<td>Stories presented in comic-strip form to avoid the use of language</td>
<td>Movie of real people Dziobek et al.,</td>
<td>1997</td>
</tr>
<tr>
<td>Movie for advanced social cognition (MASC)</td>
<td>Movie of real people</td>
<td>Heavey et al.,</td>
<td>2006</td>
</tr>
<tr>
<td>The awkward moment test</td>
<td>Animations involving triangles</td>
<td>Abell et al.,</td>
<td>2000</td>
</tr>
<tr>
<td>Animations test, “Do triangles play tricks?”</td>
<td>Animations of geometric shapes with multiple choice questions about the interactions</td>
<td>Castelli et al., Castelli et al., Bell et al.,</td>
<td>2002</td>
</tr>
<tr>
<td>Social Attribution Test – Multiple Choice (SAT-MC)</td>
<td>Photographs of a person’s eyes</td>
<td>Baron-Cohen et al.,</td>
<td>1997</td>
</tr>
<tr>
<td>The “Reading the mind in the eyes test”</td>
<td>Recordings of voices</td>
<td>Kleinman et al.,</td>
<td>2001</td>
</tr>
<tr>
<td>The Mental state voices task (MSVT)</td>
<td>Recordings of voices</td>
<td>Rutherford et al.,</td>
<td>2002</td>
</tr>
</tbody>
</table>
mind in the voice
task
unknown

Reproduces "natural conversation"
Champagne-Lavau et al.
2009

Open-ended
questions exploring
individuals
understanding of
mental states
Bosco et al.
2009

Theory of Mind
Assessment
(Th.o.m.a.s)

References


Appendix 8 – Test of Complex Social Cognition Scoring Criteria

Perspective Taking
The ability to represent the beliefs, emotions and intentions of others without necessarily feeling sympathy of emotionally sharing their predicament. The ability to suggest how they would feel in a situation, ability to give suggestions of advice they would give, ability to suggest views other than their own.

Score 0 for none
1 for some but not complete ability
2 for a good example of perspective taking

Accuracy/Plausibility
The ability to give an accurate or plausible answer which could realistically explain the situation and/or may be a good estimate of how someone might feel.

Score 0 for an inaccurate or implausible answer
1 for a quite accurate or plausible answer but not the most likely
2 for a good accurate or plausible answer

Empathy/Emotional Engagement
The ability to represent the feelings of others, and/or demonstrate sympathy or emotional identification with their predicament. The ability to suggest how the protagonists would be feeling and how they would feel in the same situation.

Score 0 for no mention of feelings whatsoever
1 for some identification with the characters and the situation but not full engagement
2 for good identification with the characters and the situation and emotional engagement.
Appendix 9 – Comparisons between those who dropped out and completed the study

Table 13 – Mann-Whitney U tests comparing means on paranoia checklist, age, and years in education

<table>
<thead>
<tr>
<th>Variable</th>
<th>Completed Survey (N = 151)</th>
<th>Dropped out (N = 104)</th>
<th>U</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Paranoia Checklist</td>
<td>49.58</td>
<td>51.93</td>
<td>49.58</td>
<td>42.95</td>
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<tr>
<td>Age</td>
<td>34.70</td>
<td>12.29</td>
<td>32.68</td>
<td>12.86</td>
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<tr>
<td>Years in Education</td>
<td>16.13</td>
<td>5.17</td>
<td>16.54</td>
<td>7.98</td>
</tr>
</tbody>
</table>

As shown in table 13, there were no significant differences between those who completed the survey and those who dropped out in terms of mean scores on the paranoia checklist, mean age and years in education.

Table 14 – Cross tabulation differences in gender between those who dropped out and those who completed the study

<table>
<thead>
<tr>
<th></th>
<th>Completed</th>
<th>Dropped out</th>
<th>Total</th>
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<tbody>
<tr>
<td>Female</td>
<td>Observed</td>
<td>126</td>
<td>79</td>
</tr>
<tr>
<td></td>
<td>Expected</td>
<td>121.4</td>
<td>83.6</td>
</tr>
<tr>
<td>Male</td>
<td>Observed</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Expected</td>
<td>29.6</td>
<td>20.4</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>151</td>
<td>104</td>
</tr>
</tbody>
</table>

Pearson’s Chi-square = 2.19, df, 1, p = 0.14. Therefore there is no difference in gender distribution between those who dropped out and those who completed the survey.
Appendix 10 – Table 15 Spearman’s rho correlation coefficients between all independent variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Age</th>
<th>Years in education</th>
<th>Reading the Mind in the Eyes</th>
<th>Beads task total draws</th>
<th>Self-esteem</th>
<th>Strange Stories</th>
<th>Test of Complex Social Cognition accuracy</th>
<th>Test of Complex Social Cognition Empathy</th>
<th>Test of Complex Social Cognition Perspective Taking</th>
<th>Total Cognitive Theory of Mind scale</th>
<th>Externalising Bias</th>
<th>Personalising Bias</th>
<th>PHQ8</th>
<th>GAD7</th>
<th>SPS</th>
<th>SIAS</th>
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<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Years in education</td>
<td>0.04</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Reading the Mind in the Eyes</td>
<td>0.05</td>
<td>0.14</td>
<td>1</td>
<td></td>
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<tr>
<td>Beads task total draws</td>
<td>-0.15</td>
<td>0.00</td>
<td>0.06</td>
<td>1</td>
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<tr>
<td>Self-esteem</td>
<td>-0.21</td>
<td>0.17</td>
<td>0.09</td>
<td>-0.05</td>
<td>1</td>
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</tr>
<tr>
<td>Strange Stories</td>
<td>0.16</td>
<td>0.16</td>
<td>0.13</td>
<td>0.10</td>
<td>0.04</td>
<td>1</td>
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</tr>
<tr>
<td>Test of Complex Social Cognition accuracy</td>
<td>-0.04</td>
<td>0.14</td>
<td>0.15</td>
<td>0.06</td>
<td>0.20</td>
<td>0.37</td>
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<tr>
<td>Test of Complex Social Cognition Empathy</td>
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<td>0.04</td>
<td>0.24</td>
<td>0.09</td>
<td>0.22</td>
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<tr>
<td>Test of Complex Social Cognition Perspective Taking</td>
<td>-0.17</td>
<td>0.12</td>
<td>0.03</td>
<td>0.13</td>
<td>0.18</td>
<td>0.35</td>
<td>0.63</td>
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<tr>
<td>Total Cognitive Theory of Mind scale</td>
<td>-0.22</td>
<td>0.17</td>
<td>0.08</td>
<td>0.21</td>
<td>0.15</td>
<td>0.59</td>
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<tr>
<td>Externalising Bias</td>
<td>0.23</td>
<td>0.09</td>
<td>0.17</td>
<td>-0.06</td>
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<tr>
<td>Personalising Bias</td>
<td>0.05</td>
<td>-0.09</td>
<td>0.03</td>
<td>-0.02</td>
<td>-0.05</td>
<td>0.04</td>
<td>-0.12</td>
<td>-0.03</td>
<td>-0.05</td>
<td>-0.02</td>
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<tr>
<td>PHQ8</td>
<td>-0.22</td>
<td>-0.15</td>
<td>-0.06</td>
<td>0.12</td>
<td>-0.68</td>
<td>0.01</td>
<td>-0.18</td>
<td>-0.15</td>
<td>-0.20</td>
<td>-0.17</td>
<td>-0.35</td>
<td>-1</td>
<td>0.09</td>
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<tr>
<td>GAD7</td>
<td>-0.23</td>
<td>-0.10</td>
<td>-0.22</td>
<td>0.01</td>
<td>-0.52</td>
<td>0.03</td>
<td>-0.09</td>
<td>-0.07</td>
<td>-0.10</td>
<td>-0.07</td>
<td>-0.31</td>
<td>0.07</td>
<td>0.72</td>
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<tr>
<td>SPS</td>
<td>-0.26</td>
<td>-0.19</td>
<td>-0.10</td>
<td>0.03</td>
<td>-0.62</td>
<td>-0.04</td>
<td>-0.28</td>
<td>-0.11</td>
<td>-0.23</td>
<td>-0.19</td>
<td>-0.28</td>
<td>0.10</td>
<td>0.70</td>
<td>0.69</td>
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</tr>
<tr>
<td>SIAS</td>
<td>-0.20</td>
<td>-0.16</td>
<td>-0.11</td>
<td>-0.01</td>
<td>-0.67</td>
<td>0.01</td>
<td>-0.24</td>
<td>-0.09</td>
<td>-0.19</td>
<td>-0.15</td>
<td>-0.33</td>
<td>0.09</td>
<td>0.71</td>
<td>0.66</td>
<td>0.82</td>
<td></td>
</tr>
</tbody>
</table>

Significant correlations of p < 0.05 are shown in bold
Appendix 11 – how the data meets the assumptions of multiple regression analysis

This section summarises the assumptions of multiple regression analysis as described by Field (2013) and how the data conforms to these.

- **Additivity and linearity** – The outcome variable (paranoia) is linearly related to all predictor variables.

- **Independent errors** – The residuals for each data point should be uncorrelated. The Durbin-Watson test is used to measure this. The Durbin-Watson statistic should be as close to 2 as possible, with scores of below 1 or above 3 being problematic. Durbin-Watson statistic for this model was 1.99 suggesting the residuals are uncorrelated.

- **Homoscedasticity** – The variance of the residuals should be constant at each level of each predictor variable. This was checked for using a scatterplot of the residuals against standardised predicted values (see figure 11). The graph should look like a random array of dots (Field, 2013). This graph shows some funnelling, suggesting some heteroscedasticity. Bootstrapping was performed to overcome this issue.

![Scatterplot](image)

Figure 11 – scatterplot of the standardised residuals against the standardised predicted values.

- **Normally distributed errors** – The residuals should be random, normally distributed variables with a mean of zero. Figure 12 shows the distribution of the residuals which suggests they are not normally distributed. However, as bootstrapping was used, this assumption can be ignored (Field, 2013).
Figure 12 – histogram showing the distribution of the residuals

- **Check for cases which may be influencing the model** – No more than 5% of standardised residuals should be above 2. In this sample 4/151 (2.6%) were above 2. Furthermore no more than 1% should be above 2.5, in this sample 2/151 (1.3%) were above 2.5. Cook’s distances were all below 1, suggesting no cases are over influencing the model.

- **No multicollinearity** – As stated in the results section, the variables were tested for multicollinearity and the SPS scale was removed from the model.
Appendix 12 – Alternative Hierarchical Multiple Regression Analysis

Step 1 – The demographic variables were entered as in previous model (see table 5 in results section.

Step 2 – The affective variables (SIAS, GAD-7) were entered into the model (see table 14)

Table 16 - Linear model of predictors of scores on the paranoia checklist, with 95% bias corrected and accelerated confidence intervals reported in parentheses. Confidence intervals and standard errors based on 1000 bootstrap samples.

<table>
<thead>
<tr>
<th></th>
<th>b</th>
<th>SE B</th>
<th>β</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>4.03</td>
<td>2.57</td>
<td>24.50</td>
<td>.87</td>
</tr>
<tr>
<td></td>
<td>(-50.06,59.38)</td>
<td></td>
<td></td>
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<tr>
<td>Age</td>
<td>0.18</td>
<td>-0.02</td>
<td>0.21</td>
<td>.40</td>
</tr>
<tr>
<td></td>
<td>(-0.21,0.54)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>4.97</td>
<td>-0.51</td>
<td>7.10</td>
<td>.49</td>
</tr>
<tr>
<td></td>
<td>(-7.95,17.14)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol use</td>
<td>-11.51</td>
<td>-0.31</td>
<td>8.61</td>
<td>.19</td>
</tr>
<tr>
<td></td>
<td>(-28.08,3.49)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug Use</td>
<td>-8.73</td>
<td>-0.08</td>
<td>4.80</td>
<td>.08</td>
</tr>
<tr>
<td></td>
<td>(-18.36,0.27)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Mood</td>
<td>-0.31</td>
<td>0.01</td>
<td>0.64</td>
<td>.63</td>
</tr>
<tr>
<td></td>
<td>(-1.58,0.97)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>3.07</td>
<td>0.00</td>
<td>0.68</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td>(1.73, 4.49)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Anxiety</td>
<td>1.82</td>
<td>-0.03</td>
<td>0.34</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td>(1.25,2.36)</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Step 3 – The cognitive variables were added to the model and this was the same as in the first model (see table 7 in the results section)