The Cognitive and Behavioural Consequences of Psychotic Experiences

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Abbreviations

AANEX: Appraisals of Anomalous Experiences Interview

ACT: Acceptance and Commitment Therapy

AMOS: Analysis of Moment Structures

ANCOVA: Analysis of Covariance

ANOVA: Analysis of Variance

AnTI: Anxious Thoughts Inventory

AOT: Assertive Outreach Team

ATT: Attention Training Techniques

BAI: Beck Anxiety Inventory

BAPS: Beliefs about Paranoia Scale

BAVQ: Beliefs about Voices Questionnaire

BCSS: Brief Core Schema Scale

BDI: Beck Depression Inventory

BPRS: Brief Psychiatric Rating Scale

CAS: Cognitive Attentional Syndrome

CBT: Cognitive Behavioural Therapy

CBTp: Cognitive Behavioural Therapy for Psychosis

CDMS: Clinical Data Management System

CDSS: Calgary Depression Scale for Schizophrenia

CFA: Confirmatory Factor Analysis
CFI: Comparative Fit Index
CISS: Coping Inventory for Stressful Situations
CMA: Comprehensive Meta-Analysis
CMHT: Community Mental Health Team
COPE: Coping Inventory
CPN: Community Psychiatric Nurse
DACOBS: Davos Assessment of Cognitive Biases Scale
DASS-21: Depression Anxiety Stress Scale
DoT: Details of Threat
DSM-V: Diagnostic and Statistical Manual of Mental Disorders (Fifth Edition)
EIT: Early Intervention Team
EPHPP: Effective Public Health Practice Project Tool
ESM: Experience Sampling Method
FEP: First episode psychosis
FOCUS: Focussing on Clozapine Unresponsive Symptoms
GAD: Generalised anxiety disorder
GFI: Goodness-Of-Fit Index
GPTS: Green Paranoid Thoughts Scale
HADS: Hospital Anxiety and Depression Scale
HAMA: Hamilton Anxiety Rating Scale
HAMD: Hamilton Depression Rating Scale
PRU: Psychosis Research Unit

PSYRATS: Psychotic Symptom Rating Scale

REC: Research Ethics Committee

RCT: Randomised Controlled Trial

RMSEA: Root Mean Square Error of Approximation

SAPS: Scale for the assessment of Positive Symptoms

SBQ: Safety Behaviour Questionnaire

SEM: Structural Equation Modelling

SRMR: Standardised Root Mean Residual

S-REF: Self-Regulatory Executive Function

STAI: State-Trait Anxiety Inventory

SURG: Service User Reference Group

TAU: Treatment as Usual

TCQ: Thought Control Questionnaire

TLI: Tucker Lewis Index

VAS: Visual Analogue Scale

WCQ: Ways of Coping Questionnaire
Abstract

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A thesis submitted to the University of Manchester for the degree of Doctor of Philosophy in the Faculty of Biology, Medicine and Health in December 2016
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This thesis explored the ways in which people experiencing psychosis respond to their distressing experiences. Mixed methodology was used to address the research questions. Chapter two included a thorough systematic review and meta-analysis to investigate the relationship between safety seeking behaviours and psychosis. This review concluded that safety seeking behaviours, avoidance and resistance were associated with increased distress whereas engagement was associated with reduced distress. The review also highlighted some conceptual difficulties with differentiating between safety seeking and coping in this population. Study one, a qualitative exploration of how people respond to the experience of psychosis is presented in chapter four. This study found three key themes relating to perceived importance of responses, accuracy of threat appraisals and perceptions of ability to control experiences. An overarching theme of fighting a daily battle to maintain functioning was also identified. This analysis provided some support for the model of safety seeking responses but also demonstrated additional complexities in the way that people respond to their distressing experiences. Chapter five presents study two, the development and validation of a measure of responses to psychosis. Principal Components Analysis identified three subscales: threat monitoring and avoidance, social control and reassurance seeking and conscious self-regulation attempts. The subscales were found to have good internal consistency and convergent validity. To build on this work, study three used Structural Equation Modelling to test an integrative cognitive and metacognitive model of voice hearing (chapter six). In support of this model, it was found that voice hearing predicted beliefs and beliefs predicted responses and negative affect. Responses were not predicted either by voice hearing or negative affect. It was also found that both schematic beliefs and meta-worry mediated the relationship between avoidance and negative affect. Finally, in study four, presented in chapter seven, the response styles of attentional avoidance and attentional focusing were manipulated in response to an ambiguous auditory task in an experimental study. It was found that the attentional avoidance response resulted in a significantly greater increase in words heard during the task. However, the manipulation did not have an impact on distress levels. This thesis has demonstrated significant relationships between response styles, distress, appraisals and voice hearing. This, therefore, confirms the important role of responses to unusual experiences in models of psychosis. It appears that avoidance is likely to be unhelpful however, it should not be assumed that other responses are either helpful or unhelpful as this is likely to be person and context specific. The clinical and research implications of this are discussed.
Declaration

I declare that no portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

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Alternative format presentation

This thesis has been completed in alternative format in order to allow for ongoing dissemination of the work throughout the process. A systematic review and meta-analysis has been completed as well as four research studies. The systematic review and meta-analysis is currently under review at Clinical Psychology and Psychotherapy. Study one is under second review at Psychology and Psychotherapy: Theory, Research and Practice. Study Two has been accepted for publication in Schizophrenia Research. Study three is under review at Schizophrenia Bulletin and study four with Psychiatry Research. For the purposes of this thesis, references and page numbers are presented in a consistent manner.

Data

Data for studies 2 and 3 was collected as part of The FOCUS Trial. The author worked as a Research Assistant on The FOCUS Trial throughout the PhD registration. Therefore, the author contributed to this data collection and was responsible for the design, analysis and write up of studies 2 and 3.

Collaborators and authorship

Supervision regarding the development, analysis and conduct of the studies presented in this thesis has been supervised by Professor Anthony P Morrison and Professor Adrian Wells. Therefore, they are both listed as an author on each paper. Studies 2 and 3 used data collected as part of The FOCUS Trial and, therefore, researchers who were involved with the design and management of FOCUS have been included as co-authors on these papers.

Analysis and write up

The data analysis and write up of each of the papers presented here has been carried out by the author, under the supervision of Professors Anthony P Morrison and Adrian Wells.
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The author

I started work in the National Health Service in 2008 as a Psychological Wellbeing Practitioner. This involved delivering low-intensity, guided self-help interventions to people experiencing anxiety and depression. Alongside this role I completed an MSc in Advanced Practice Interventions for Mental Health. This provided me with a good foundation of research and clinical skills. In 2012, I gained a position at The Psychosis Research Unit working on The ACTION Trial, a trial investigating the efficacy of Cognitive Behavioural Therapy for people experiencing psychosis but choosing not to take antipsychotic medication. I then moved on to work on The FOCUS Trial, a trial examining the efficacy of CBT for clozapine resistant schizophrenia. I have completed my PhD alongside this role.
Chapter 1: Introduction

1.1 Overview
The aim of this review is to provide an overview of the research that has been conducted in the field of schizophrenia and psychosis. A brief background to diagnosis, symptoms and risk factors will be provided followed by theoretical explanations as to the causes of psychosis. Particular attention will be paid to psychological models of psychosis and how cognitive and behavioural responses fit within these models. This review will lead to the aims and objectives of the overall thesis. Specific aims and hypotheses will be stated within each individual study. Following this, a thorough systematic review and meta-analysis of safety seeking behaviours used in response to psychosis will be presented.

1.2 Background

1.2.1 History of psychosis
The study of schizophrenia and psychosis has been on-going for the past two centuries and throughout this time has been surrounded with debate and disagreement (Wing and Agrawal, 2003). The work of Emil Kraepelin in the late nineteenth century has had a strong and enduring influence on modern psychiatry (Craddock and Owen, 2010). He proposed that mental illness could be grouped into categories according to symptoms and that each category would have its own distinct symptom profile (Bentall, 2003). He also proposed that each category would have an underlying organic cause and that study of symptoms would help to identify what this cause was (Bentall, 2003). In his later works, Kraepelin grouped together ten of his previously identified categories under the heading dementia praecox. This reflected his view that the condition would first appear in young adults and would follow a progressively worsening course (Bentall, 2003). The symptoms were described as hallucinations, delusions, problems with concentration and incongruous emotions (Bentall, 2003). Two other categories of psychosis were identified in Kraepelin’s work, manic depression and paranoia, demonstrating the lasting impact of his work, as this conceptualisation of mental illness continues to be pervasive today (Craddock and Owen, 2010).
Kraepelin’s largely pessimistic view on the course of dementia praecox was amended by Eugen Bleuler, who first used the label schizophrenia early in the twentieth century (Wing and Agrawal, 2003). Bleuler’s view also differed from that of Kraepelin as he viewed symptoms such as hallucinations as secondary responses to the illness and not themselves a product of underlying organic cause (Wing and Agrawal, 2003). Bleuler, like Kraepelin, did believe that the cause of schizophrenia was rooted in biology however, he also introduced a psychological component to his explanation (Bentall, 2003). His belief that thought disorder was the primary symptom of schizophrenia led to consideration of cognition in the understanding of schizophrenia for the first time (Wing and Agrawal, 2003). His approach also recognised the heterogeneity that exists between individuals given a diagnosis of schizophrenia (Bentall, 2003).

Kurt Schneider’s work in the 1950’s drew attention back to what would now be called the positive symptoms of schizophrenia (Bentall, 2003). He produced a list of what he referred to as first rank symptoms and proposed that these could be used in order to make a diagnosis of schizophrenia (Bentall, 2003). These symptoms included hearing voices conversing or keeping a commentary on behaviour, experiencing thoughts being removed from the mind and delusions of being controlled by others (Bentall, 2003). Schneider’s first rank symptoms remained prominent in modern diagnostic systems, until the most recent update, from which they have been removed (Tandon et al., 2013).

Over the past thirty years there has been an increase in the level of research interest into the diagnosis of schizophrenia, its causes and treatments (Fischer, 2014). With ever increasing knowledge in this area, this should mean that the most effective approaches to managing the distress associated with schizophrenia can be identified and implemented (Fischer, 2014). However, there is currently still little agreement over the aetiology of schizophrenia, the most effective treatment or even whether it should exist as a concept at all (Bentall, 1990a).

1.2.2 Diagnosis

The work of both Kraepelin and Bleuler is still evident in psychiatry today with modern diagnostic systems being based on their work (Bentall, 2003). Diagnostic systems such as
the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) provide a checklist of symptoms which must be present for a diagnosis to be given (Johns and van Os, 2001). For a diagnosis of schizophrenia, these symptoms include delusions, hallucinations, conceptual disorganisation and negative symptoms like blunted emotions and apathy (Tandon et al., 2013). To receive a diagnosis some impact on functioning must also be evident and difficulties need to be ongoing for at least six months (Tandon et al., 2013). This makes it a dichotomous system whereby an individual either has schizophrenia or they do not (Johns and van Os, 2001). The DSM-V has been criticised in this respect for the over-medicalisation of what could otherwise be viewed as an understandable response to difficult or confusing experiences (BPS, 2011).

In contrast to this view, others have argued that psychosis is not a dichotomous entity but actually exists along a continuum (Johns and van Os, 2001). The fact that psychotic experiences occur in the general population provides support for this theory (Johns et al., 2004). Prevalence of such experiences in the general population has been found to range from 5.5% (Johns et al., 2004) to 17.5% (van Os et al., 2000). Experiences such as paranoia (Freeman et al., 2005), hearing voices (Davies et al., 2001) and unusual beliefs such as about magic and telepathy (Yung et al., 2009) have all been found in non-clinical samples, and may be even more common in certain groups, such as religious groups (Davies et al., 2001). Such experiences are thought to be common in the general population and do not present a problem unless they become upsetting for the individual (Freeman et al., 2005). The majority of participants (91%) in a study of nonclinical voice hearers reported that hearing voices did not impact on their work or social life (Sommer et al., 2010).

It has also been found that unusual experiences in the general population share the same risk factors as those for schizophrenia, suggesting that they are not distinctly different from one another (Johns et al., 2004; van Os et al., 2000). For example, it has been found that voice hearers in the general population had both a genetic vulnerability to psychosis and were also more likely to have experienced trauma during childhood (Sommer et al., 2010).

A review found that those experiencing psychotic-like experiences in the general population
were more likely to be from an ethnic minority, a migrant, single and out of work, supporting the view of a psychosis continuum (van Os et al., 2009).

The current system for diagnosing schizophrenia implies that the same individual would receive the same diagnosis no matter who they were assessed by (Bentall, 1990b). This diagnosis should then relate meaningfully to the cause of the symptoms, prognosis and effective treatments, however, it has frequently been found that this is not the case (Bentall, 1990b). This has called in to question the utility of diagnostic classifications, as although certain “symptoms” may tend to occur together, this does not mean they are caused by a single underlying factor called “schizophrenia” and a one size fits all approach is unlikely to be appropriate for all individuals or across all settings (Bentall, 2014). Therefore, it has been suggested that research and clinical practice should instead focus on the particular experiences that individuals are struggling with as opposed to focussing on diagnosis (Bentall, 1990b). It is proposed that this symptom-based approach to studying schizophrenia could improve our ability to support people experiencing psychosis (Bentall, 2014).

Qualitative research has identified both positive and negative elements of receiving a diagnosis of psychosis or schizophrenia (Pitt et al., 2009). Positive element include accessing support from services and a greater understanding of experiences, however, the negative elements include disempowerment, feeling labelled and experience of stigma and social exclusion (Pitt et al., 2009).

Finally, there is some debate surrounding using the word schizophrenia to describe these experiences. It is argued that this word, that was coined over one hundred years ago, with its now associated connotations of spilt personality, is no longer an appropriate label (van Os and Kapur, 2009).

1.2.3 Positive symptoms
Positive symptoms are considered to be the presence of certain experiences that would not be expected (Fletcher and Frith, 2009). Primarily, these are considered to be delusional beliefs and hallucinatory experiences. Such experiences will be referred to throughout this thesis as unusual beliefs and hearing voices, as opposed to the use of medical terms.
The DSM-V describes delusions as being strongly held beliefs that remain fixed even in the light of evidence that would seem to contradict them. There are common themes to these beliefs including feelings of being persecuted, ideas of reference and feelings of importance (Suhail and Cochrane, 2002). Persecutory beliefs are thought to be the most common type of unusual belief and are also associated with more distress than, for example, feelings of importance (Freeman et al., 2002). A distinction is sometimes made between bizarre and non-bizarre delusions, with bizarre delusions relating to events that do not occur in everyday life or cannot be considered plausible within the person’s culture (Mullen, 2003). There are problems with this as some beliefs which could be considered bizarre are actually commonly held in the population, such as believing in paranormal activity (Lawrence and Peters, 2004). Bizarreness has been defined in different ways in different publications and, therefore, diagnosis has not been found to be reliable (Cermolacce et al., 2010). Further, it is felt that this simplistic view does not take into consideration an individual’s experiences that could make a belief understandable (Mullen, 2003). Perhaps for this reason, bizarre delusions have now lost the importance they had in previous versions of the DSM, where only one was required to warrant a diagnosis of schizophrenia (Tandon et al., 2013).

Unusual beliefs would be best considered as multidimensional and varying along these dimensions, as opposed to simply either being present or absent (Peters et al., 1999). The level of conviction in the belief, the degree of preoccupation with it and the amount of distress it causes can all fluctuate and this can be thought to represent a continuum within the general population (Peters et al., 1999). For instance, as previously mentioned, many people believe in paranormal activity, magic or mind reading (Peters et al., 1999). As these are generally culturally acceptable beliefs, these would not necessarily be considered delusional in nature. However, if there was a high level of preoccupation with the belief, it was causing distress and impacting on functioning, this could be considered more problematic. Although beliefs considered delusional are thought to be held fixedly, within a clinical sample there is also variation in this. For instance, it has been found that nearly half of a sample of 100 participants said they could possibly be mistaken about their belief (Garety et al., 2005).
A hallucination can be defined as a perception in any of the five senses that feels real but has arisen without actual input to that sensory organ, and is experienced as uncontrollable (Slade and Bentall, 1988). Amongst people with a diagnosis of schizophrenia, auditory hallucinations were found to occur more frequently than hallucinations of the other senses (Mueser et al., 1990). Visual hallucinations were the second most frequent (Mueser et al., 1990). Hearing voices has been associated with feelings of depression and suicidal ideation (Connor and Birchwood, 2013). However, it has also been found that voices can be experienced as offering emotional support and, therefore, can provide some protection against depression and suicide (Connor and Birchwood, 2013). For some people hearing voices can be a positive experience however, this is less often the focus of research interest (Sanjuan et al., 2004). This could be because the valence of the voice can be associated with distress levels experienced. As previously mentioned, voices occur commonly in the general population and it has been found that the content of these is more positive than that found in a clinical population (Daalman et al., 2011; Sommer et al., 2010). In a non-clinical sample, it was found that where voices were negative in content, this was associated with greater distress and lower levels of functioning, suggesting this could be an important distinction (Sommer et al., 2010). Similarly, emotional content of the voice has been found to be the main predictor of clinical status (Daalman et al., 2011). Other differences found between a clinical and nonclinical group include greater frequency of voices, less controllability and heightened distress levels in the clinical sample (Daalman et al., 2011). No differences were found with regards to location (inside versus outside the head), volume or number of voices (Daalman et al., 2011). Interestingly, a difference was found in degree of external attributions for the cause of the voice, with the nonclinical sample scoring higher on this (Daalman et al., 2011). However, the external explanations of the non-clinical group appeared to be more culturally acceptable explanations, such as relating to spirituality. In comparison, the clinical group more frequently reported other people to be the external agent (Daalman et al., 2011). Previous research has found that transition to need for care in people in the general population hearing voices is associated with the development of unusual beliefs (Krabbenham et al., 2004).
Other positive symptoms include tangential or confusing speech (conceptual
disorganisation), excitement and hostility.

1.2.4 Negative symptoms

Negative symptoms of schizophrenia are considered to be the absence of certain traits that are expected to be present (Fletcher and Frith, 2009). The core components are considered to be diminished emotional expression (blunted affect), reduced speech (alogia), social withdrawal (asociality), loss of enjoyment (anhedonia), and reduced motivation (avolition, Kirkpatrick et al., 2006). Such symptoms are reported more frequently in clinical samples than in participants with experience of psychosis but without a need for care (Peters et al., 2016).

Negative symptoms impact greatly on quality of life and functioning (Kirkpatrick et al., 2006). Although positive symptoms are generally the focus of research and clinical practice, it appears that it is actually negative symptoms that cause people experiencing psychosis and their families the greatest concern (Turkington and Morrison, 2012).

It has been suggested that negative symptoms exist along a continuum (Rector et al., 2005). In some cases, negative symptoms are present consistently as part of an individual’s core difficulties. In other cases they may appear in response to unusual beliefs, depression or side effects of antipsychotics (Rector et al., 2005).

1.2.5 Prevalence and risk factors

The lifetime prevalence rates reported for a diagnosis of schizophrenia vary from study to study (Goldner et al., 2002). A systematic review of the literature has reported lifetime prevalence varying from 0.12 to 1.6 per 100 (Goldner et al., 2002). These figures were higher if other schizophrenia spectrum disorders were also taken into account (Goldner et al., 2002). Based on a pooled analysis of data, 0.55 per 100 and 1.45 per 100 are given as the best estimates of lifetime prevalence for schizophrenia and schizophrenia spectrum diagnoses respectively (Goldner et al., 2002). Studies conducted in Asian countries and New Zealand were found to have lower lifetime prevalence rates than those studies conducted in Europe, the USA and Canada (Goldner et al., 2002). Minimal gender differences in prevalence were found in this review (Goldner et al., 2002).

A commonly
reported gender difference is that men tend to be younger than women when they first begin
to experience difficulties associated with schizophrenia (Faraone et al., 1994). A more
recent analysis of data relating to service use in England concluded that more males than
females experience psychosis (PHE, 2016). This is true until the age of sixty, when women
are over represented (PHE, 2016).

In contrast, the median prevalence of psychotic experiences in the general population has
been found to be 7.2%, somewhat higher than the prevalence of schizophrenia (Linscott and
Van Os, 2013).

Risk factors include family history of schizophrenia and being born in an urban area
(Mortensen et al., 1999). Being from an ethnic minority, particularly Black ethnic groups, has
been found to increase risk (Fearon et al., 2006). Furthermore, this risk is even greater the
fewer people there are from that ethnic minority living in the area (Boydell et al., 2001). This
link with urban areas and migration could reflect an underlying common factor of social
disadvantage (van Os and Kapur, 2009). Alternatively, it could be that unusual experiences
such as hallucinations are more culturally acceptable within non-western communities and
so the rate of reporting such experiences may be higher (Larøi et al., 2014). However, this
seems unlikely to be the case as people from black backgrounds are more likely to be
admitted involuntarily, restrained and medicated against their will, leading to an
understandable mistrust of services (The Schizophrenia Commission, 2012).

Similarly, socioeconomic status has been linked to the experience of psychosis (e.g. Werner
et al., 2007) as well as to other mental health difficulties (Hudson, 2005). In particular there
is a proposed link between low socioeconomic status and feelings of paranoia (Anderson
and Freeman, 2013). This link could be due to the fact that people of a lower socioeconomic
status may have to face a greater number of stressors on a daily basis, feel that they have
less control over their situation and feel that they have to compete more with others, leading
to feelings of inferiority and potential threat from others (Anderson and Freeman, 2013).

Use of cannabis has been linked to the later development of schizophrenia (Zammit et al.,
2002). A recent case control study found that having ever used cannabis did not increase
risk over those who had never used cannabis, however, starting to use cannabis under the
age of fifteen increased risk, as did daily use (Di Forti et al., 2015). A dose-response relationship was found with high-potency, skunk-like cannabis. The more frequently it was used, the more likely the person had a diagnosis of psychosis compared to those who never used (Di Forti et al., 2015). The authors concluded that 24% of the first-episode psychosis cases in their study could be attributed to skunk use (Di Forti et al., 2015). Although some other possible risk factors were controlled for in this study such as ethnicity and employment, other potential factors were not taken into account. For example, use of cannabis could be a mediating variable between the experience of psychosis and other adverse life events, such as trauma or abuse.

There is now growing recognition for a link between trauma and experience of psychosis. One survey of people hearing voices found that 70% reported their voices started after a traumatic incident such as an accident or bereavement, as well as following emotional events in general such as pregnancy (Romme and Escher, 1989). In particular there is evidence for an association with abuse in childhood and psychosis (Read, 1997), especially hearing voices (Manning and Stickley, 2009). A longitudinal study of twins found that maltreatment and bullying were strongly associated with experience of psychosis by the age of twelve (Arseneault et al., 2011). This association remained after controlling for possible confounds such as socioeconomic status and genetic vulnerability (Arseneault et al., 2011).

Some of the same risk factors are associated with both onset and prognosis. Family history and other biological risk factors have been found to be related to poor outcome, whereas adverse life events and ethnicity are related to better outcome (van Os et al., 1998).

Consistent with the continuum view of psychosis, it has been found that similar risk factors underlie psychotic experiences in the general population, such as being from an ethnic minority, not earning as much, substance misuse and experience of stress or trauma (Linscott and Van Os, 2013). In contrast, others have found that people who have unusual experiences but who do not have a need for care are less likely to be from an ethnic minority group, be a migrant or be from a working class background than a clinical population (Peters et al., 2016).
If public health policies could address the risk factors detailed above then this could contribute to reducing the incidence of schizophrenia (van Os and Kapur, 2009). Prevention of mental health problems will involve creating a society where people can live free from poverty, abuse and inequality (Kinderman, 2016).

1.2.6 Social consequences

A considerable health inequality is associated with a diagnosis of schizophrenia. People with this diagnosis have a 2.5 times greater risk of dying than the general population (Saha et al., 2007). In certain areas the increased risk could be as high as 5.9 times (PHE, 2016). Although health outcomes for the general population are improving over time, the increased risk of mortality associated with a schizophrenia diagnosis is increasing. This suggests that improvements in healthcare are not available to all equally (Saha et al., 2007). This could also reflect the fact that a diagnosis of schizophrenia is known to be associated with increased risk of serious diseases such as diabetes, cardiovascular disease, HIV and respiratory problems (De Hert et al., 2011). The greatest number of excess deaths has been found to be associated with cardiovascular disease (PHE, 2016). A study investigating the rate of avoidable deaths in people with a diagnosis of schizophrenia found that over a twelve month follow up of people recently discharged from hospital, 60% of deaths could have been avoided (Hoang et al., 2013). There were almost three times as many deaths in the participants with a diagnosis of schizophrenia as compared to those with a diagnosis of bipolar (Hoang et al., 2013). It is thought that people with a diagnosis of schizophrenia are not adequately screened and treated for certain health problems (De Hert et al., 2011). This is especially problematic given that conditions such as obesity, diabetes and cardiac problems are associated with treatment with antipsychotic medication (De Hert et al., 2011). This client group may also have less healthy lifestyles, which may contribute to their poor health status, for example, excessive smoking and drinking and poor diet (Björkenstam et al., 2012). Increased risk of suicide is also a contributing factor (Björkenstam et al., 2012).

It is known that people with experience of psychosis are more likely to be the victims of violence and crimes such as assault, rape and robbery than would be expected in the general population (Maniglio, 2009). This has been found to be true in Australia and
America as well as in the UK (Maniglio, 2009). In a study of 174 outpatients in Sweden, two thirds reported being the victims of violent crime during adulthood (Bengtsson-Tops and Ehliasson, 2012). The reasons for this have not been fully elucidated but, in the Swedish study, over half of the incidences of violence did not involve drugs or alcohol and so it should not be assumed that this is a significant causal factor (Bengtsson-Tops and Ehliasson, 2012). In a longitudinal, UK based study, it was found that the main predictors of being a victim of crime included having previously been a victim of crime, infrequent contact with family and being younger at the onset of psychosis (Dean et al., 2007). This, therefore, suggests a vulnerable and isolated group, at risk of repeated violence and perhaps unable to access the support they need in relation to this from either family or mental health services (Dean et al., 2007). Unfortunately, the perpetrator of the abuse could even be someone who is supposed to be involved in the individual’s care (Maniglio, 2009).

Stigma in relation to mental illness in general and psychosis in particular, represents a huge problem (Arboleda-Florez, 2005). A large scale survey across twenty-seven different countries found that nearly half the respondents felt at a disadvantage as a result of having a diagnosis of schizophrenia (Thornicroft et al., 2009). Nearly half the sample reported difficulties with friends and family and around a quarter identified feeling at a disadvantage in terms of finding and keeping work and in relation to their personal safety (Thornicroft et al., 2009). Individuals with a diagnosis of schizophrenia more frequently report experience of both physical and verbal abuse as well as social marginalisation than people diagnosed with anxiety or depression (Dinos et al., 2004). They also report that they feel they have to conceal their diagnosis from others and would prefer to say that they are suffering with depression, anxiety or a physical illness (Burke et al., 2016; Dinos et al., 2004). This is in part due to a lack of understanding about what it means to experience psychosis and the negative stereotypes relating to danger and violence perpetuated by the media (Burke et al., 2016). People experiencing psychosis believe they will be deemed as less trustworthy and as a failure due to having been hospitalised (Kleim et al., 2008). Such perceptions of stigma have also been found to be related to reduced self-efficacy after controlling for demographic and clinical factors (Kleim et al., 2008). Critically, stigma has also been perceived as
representing a barrier to recovery that can worsen symptoms and impact on functioning (Burke et al., 2016).

1.3 Explanations of psychosis

1.3.1 Biological explanations of psychosis

As previously noted, family history has been found to be a risk factor for schizophrenia (Mortensen et al., 1999). This led to the view that schizophrenia may have a genetic basis (McGuffin et al., 1995). As monozygotic twins are born with an identical set of genes, it would be expected that if schizophrenia was a heritable condition, then there would be a 100% concordance rate in monozygotic twins (McGuffin et al., 1995). However, this has not been found to be the case. One meta-analysis of twin studies reported a concordance rate of 81% (Sullivan et al., 2003). The methodology used for calculating concordance rates has been criticised for leading to inflated results (Bentall, 2009). If analysis is conducted using only data from methodologically correct studies, the concordance rate drops to 22.4% (Bentall, 2009). Research has focussed on specific genes, high risk alleles and variations in repeats of sections of the genome (EU-GEI, 2014). Although some consistent results have been found, only a small proportion of risk remains accounted for by this line of research (EU-GEI, 2014). This, therefore, suggests some genetic influence but a smaller effect than previously believed (Bentall, 2009). It is likely that there is an interaction between genetics and environment. For example, it has been proposed that a latent vulnerability to psychosis could become active under the right circumstances, such as trauma or stressful life events (Zubin and Spring, 1977). Approaches that recognise an interaction between genotypes and the environment suggest that neither of these factors alone causes psychosis but rather emphasise the importance of the impact of these two factors in combination (van Os et al., 2008). This line of research could explain why complete concordance is not found in twin studies as environmental factors could mediate the effect (van Os et al., 2008).

It has frequently been reported that in people with a diagnosis of schizophrenia, brain volume is reduced and the volume of the ventricles is increased compared to controls (Wright et al., 2000). In a large meta-analysis, it was found that total brain volume was significantly reduced in participants with a diagnosis of schizophrenia, and this was due to
loss of grey matter (Haijma et al., 2013). The reductions in participants who had never taken antipsychotic medication were considerably lower. Higher doses of medication were found to correspond to greater loss of grey matter. However, reductions in the thalamus and caudate nucleus were greater in the participants’ who were not taking medication. The authors concluded that antipsychotic medication can prevent some of the reductions in brain volume associated with schizophrenia (Haijma et al., 2013). In contrast, others have argued that some of the observed changes to the brain could be caused by taking antipsychotic drugs (Moncrieff and Leo, 2010). A review of the literature has found that brain volume was reduced and ventricles enlarged in people taking such medication (Moncrieff and Leo, 2010). This review also found that participants who had not taken antipsychotic medication or who had done so for less than four weeks were not any different as compared to controls in terms of brain volume (Moncrieff and Leo, 2010). This contradicts previous findings that differences in brain volume are already present in people with recent-onset schizophrenia (Vita et al., 2006).

It was the advent of the use of antipsychotic medication in the 1950’s that led to exploration of the dopamine hypothesis as a way of understanding schizophrenia (Seeman, 1987). It was proposed that people with a diagnosis of schizophrenia have an excess of dopamine in the brain and that antipsychotics work by reducing this (Meltzer and Stahl, 1976). Early evidence for this was taken from the fact that people treated with antipsychotics often develop symptoms of Parkinson’s disease, which is thought to be caused by a lack of dopamine and also by the fact that hallucinogenic drugs such as LSD are thought to act on the dopamine receptors (Seeman, 1987). Much research has been conducted since this time leading to a dopamine hypothesis that also incorporates other genetic and environmental risk factors, and that is able to account for how an excess of dopamine is related to the experiences that people report (Howes and Kapur, 2009). Release of dopamine is associated with marking the saliency of new rewarding stimuli detected in the environment (Kapur et al., 2005). It has been suggested that due to certain genetic or environmental factors, dopamine receptors can become activated in the absence of such environmental cues (Kapur et al., 2005). This, therefore, creates a feeling of novelty and salience without a clear contextual factor driving this. In an attempt to find a reason for
these feelings, unusual beliefs can develop (Kapur et al., 2005). This explanation however, does not account for the experience of negative symptoms (Kapur et al., 2005). It also appears that if the dopamine system has become overly active as a result of, for example, certain environmental factors then targeting dopamine in treatment may not have an impact on the underlying cause of the difficulties someone is experiencing. Antipsychotic use has been compared to using anaesthetic to numb the pain of being punched by a bully (McCarthy-Jones and Longden, 2013). This would neither be considered to be a cure nor related to the cause of the problem and yet this is the case with use of antipsychotic medication (McCarthy-Jones and Longden, 2013).

There is some indication that biological factors might have a greater impact on development of negative rather than positive symptoms. For example, genetic concordance has been found to be higher where more negative symptoms are observed (Dworkin and Lenzenweger, 1984), as has ventricular enlargement (Andreasen et al., 1982).

Attention is now being paid to a biopsychosocial approach to understanding schizophrenia and in reducing the disparity in research between biological and psychosocial causal factors (Read et al., 2009). Epigenetics, the study of environmental influence on gene expression, is now being considered as an important factor. This approach demonstrates how adverse events, such as childhood abuse, can “turn on” certain genetic expression (Read et al., 2009). This could influence brain development, connectivity and neurotransmitter levels and so suggests an important and previously overlooked environmental influence in the biological research outlined above (Read et al., 2009). Correlational research has found an association between experience of childhood trauma and reduced levels of cortisol in participants with a diagnosis of schizophrenia (Braehler et al., 2005). This lends support to the theory of Hypothalamic-Pituitary-Adrenal (HPA) axis dysregulation being associated with trauma and leading to greater vulnerability to later stress (Braehler et al., 2005; Read et al., 2001).

1.3.2 Biological treatments

The National Institute for Health and Care Excellence (NICE) guidelines for the treatment of schizophrenia recommend that antipsychotic medication should be offered (NICE, 2014). A
large meta-analysis of over forty thousand participants compared fifteen commonly prescribed antipsychotics (Leucht et al., 2013). It was found that all were superior in efficacy to placebo. Effect sizes ranged from -0.33 (Iloperidone) to -0.88 (Clozapine, Leucht et al., 2013). All of the antipsychotics except for one (Zotepine) were less likely to be discontinued than the placebo (Leucht et al., 2013). In contrast to this, one large study found that 74% of participants discontinued the medication before the end of the trial, indicating both lack of efficacy and acceptability to individuals with a diagnosis of schizophrenia (Lieberman et al., 2005). Both studies found weight gain to be a problematic side effect of antipsychotics (Leucht et al., 2013; Lieberman et al., 2005). The meta-analysis found that the majority of the antipsychotics produced significantly more weight gain than placebo, most notably olanzapine with a large effect size of 0.74 (Leucht et al., 2013).

Clozapine has been found to be significantly the most effective drug (Leucht et al., 2013). A study that compared outcomes for participants either initiating clozapine or another antipsychotic found that the participants who commenced clozapine were significantly less likely to be admitted to hospital than those participants prescribed alternative drugs (Stroup et al., 2015). However, there could be confounding factors influencing this result. For instance, receiving clozapine could also be associated with increased contact with services as a result of clozapine monitoring, resulting in better early detection of relapse (Stroup et al., 2015). Clozapine is considered the most effective treatment for symptoms of schizophrenia that have been “treatment resistant” (Meltzer, 2012). It is associated with reduced rates of discontinuation and lower levels of some motor side effects (Meltzer, 2012). However, clozapine is also associated with increased risk for a range of serious physical health problems such as diabetes, cardiovascular problems and a deficiency in white blood cells (agranulocytosis, Meltzer, 2012).

As mentioned above, the side effects associated with other antipsychotics can also be problematic including weight gain (Lieberman et al., 2005), changes in brain volume (Moncrieff and Leo, 2010) and increased risk of death (Weinmann et al., 2009). This last claim, however, has been questioned following a study of all people with a diagnosis of schizophrenia who were admitted to hospital over a thirty year period in Finland (Tiihonen et
This study found that the rate of mortality attributable to all causes was actually lower amongst those taking antipsychotics than amongst those who were not (Tiihonen et al., 2009). There was variation between different antipsychotics with clozapine being associated with a reduced rate of mortality and quetiapine, risperidone and haloperidol an increased rate compared to other antipsychotics (Tiihonen et al., 2009). This study has been criticised for several reasons including lack of comparison with a general population sample, the exclusion of deaths that occurred in hospitalisations of greater duration than two days as well as other methodological and sampling issues (De Hert et al., 2010). Further research is needed to clarify this important issue (De Hert et al., 2010).

A systematic review and meta-analysis looking at the efficacy of a commonly prescribed antipsychotic (quetiapine), found that the number needed to treat was 21, meaning that for one person to show symptom improvement, 21 people must be treated with quetiapine (Hutton et al., 2015). This review also highlighted the importance of enforcing transparency in clinical trials as data was not always available for registered trials and access to data was problematic (Hutton et al., 2015).

It has been found that people with a diagnosis of schizophrenia not taking antipsychotic medication had significantly better outcomes than those taking medication, both in terms of functioning and levels of symptoms (Harrow and Jobe, 2007). The same result has also been found with follow up of participants continuing over a twenty year period (Harrow et al., 2014). Further, it was found that participants taking medication were hospitalised more frequently than the medication free participants over the twenty year follow up (Harrow et al., 2014). This evidence suggests that not everyone with a diagnosis of schizophrenia will benefit from taking medication and has led to a call for improved treatment choice for people with this diagnosis where medication is the typical first line treatment (Morrison et al., 2012).

### 1.3.3 Psychological explanations of psychosis

Central to the cognitive model of emotional disorders is the notion that interpretations and beliefs influence our emotional and behavioural responses (Beck, 1963). This model has been applied to a variety of psychological difficulties and, more recently, has also been applied to the experience of psychosis. In contrast to the biological models outlined above,
this model assumes that psychotic experiences are normal and occur frequently in the
general population (Morrison, 1998). Some support for this assumption has already been
presented (e.g. Van Os et al, 2000). It is suggested that intrusions into awareness in the
form of thoughts or images are common and experienced by everyone (Morrison, 2001). It
is the interpretation or misinterpretation of such intrusions that can lead to anxiety, distress
or the experience of psychosis (Morrison, 2001). It is the content of the interpretation of the
intrusion which will determine the diagnosis given. For example, someone who interprets
palpitations as a sign they are about to have a heart attack would be told they have panic
disorder but someone who interprets the same physical sensations as a sign their body has
been taken over by an evil force, would be told they have psychosis (Morrison, 2001). The
defining characteristic of interpretations that would be considered delusional is that they are
not acceptable within the person’s culture (Morrison, 2001). Similarly, it has been suggested
that it is the misattribution of internal events to an external source, as opposed to internal as
might be the case in anxiety disorders, that is significant in psychosis (Garety et al., 2001).

There is some evidence that people who hear voices are misattributing their own inner
speech to something external to themselves (Bentall, 1990a). Studies that have analysed
the electrical impulses implicated in speech have found support for this theory (Gould, 1950;
Inouye and Shimizu, 1970). It has been demonstrated that electrical activity was greater at
times when participants reported that they were hearing voices and furthermore, the louder
the voice was, the greater the activity observed (Inouye and Shimizu, 1970). Since this time,
experimental paradigms have been employed to determine if voice hearers do demonstrate
an externalising bias. Tasks such as signal detection, which require participants to pick out
speech from background noise (e.g. Varese et al., 2012a), or source monitoring, which
require distinguishing between words generated by themselves and others (e.g. Bendall et
al., 2011), have been utilised. A meta-analysis of these studies found robust evidence for an
association between voice hearing in both clinical and non-clinical populations and
misattribution biases (Brookwell et al., 2013). It is suggested that a bias towards external
attributions such as this may be serving to reduce the individual’s anxiety and protect their
self-esteem as they do not have to associate certain thoughts with themselves (Bentall,
1990a). However, although evidence for such an attributional bias has been found, there is
little evidence to suggest that the function of this is to protect self-esteem (Freeman et al., 2002).

A similar theory suggests that voices are experienced when normal intrusive thoughts are misattributed to an external source (Morrison et al., 1995). There could be several reasons why this happens, one theory being that it is an attempt to reduce cognitive dissonance (Morrison et al., 1995). Cognitive dissonance occurs when thoughts or feelings are experienced that conflict with each other, so creating a state of anxiety (Festinger, 1962). Using word association tasks, it has been found that participants hearing voices were more likely to feel the word they generated was not their own, they had less control over it and they did not want to think that particular word in comparison to both a control group of participants with schizophrenia not hearing voices and non-clinical controls (Baker and Morrison, 1998). Further, across all groups, the content of the word was found to have an impact. Emotionally laden words of both positive and negative valence were rated as less internal and less controllable than neutral words (Baker and Morrison, 1998). As might be expected from cognitive dissonance theory, this suggests that the content of intrusions will have an impact on determining the occurrence of misattribution. As this result was found in all groups, this also lends support to the continuum theory of psychosis as involving normal processes (Baker and Morrison, 1998).

Therefore, this suggests that it is the way an individual makes sense of their experiences that is important and there may be certain biases in thinking that lead to interpretations that are considered delusional (Garety et al., 2001). Primarily, a tendency to jump to conclusions, a bias towards an external attributional style and a reduced understanding of the thoughts and feelings of others (theory of mind, Garety et al., 2001). Those who are more able to challenge the appraisal of externality and think of alternative explanations, may be less likely to develop psychosis (Garety et al., 2001). In support of this, a review of the literature has found strong evidence for a jumping to conclusions bias and for a tendency to blame others when things go wrong in people with unusual beliefs (Garety and Freeman, 1999). Although research does support the presence of theory of mind difficulties in people with a diagnosis of schizophrenia, this appears to be more strongly related to negative
symptoms as opposed to unusual beliefs (Garety and Freeman, 1999). More recently, it has been found that participants who showed a greater jumping to conclusions bias and lower flexibility in beliefs had a stronger conviction in their delusional beliefs (Garety et al., 2005). In this case, these reasoning biases were found to relate specifically to aspects of delusions, rather than other experiences such as hallucinations or negative symptoms (Garety et al., 2005).

It is likely that appraisal of events will be dependent upon the experiences a person has had in life and the way they view themselves and other people (Morrison, 2001). Experience of traumatic life events, such as abuse, could lead to the development of a view that other people are threatening, causing later experiences to be interpreted in this light (Garety et al., 2001; Morrison, 2001). Research in the general population that has found an association between negative life events and unusual beliefs or perceptual experiences has provided support for this view (Johns et al., 2004). As previously mentioned there is increasing evidence of a link between abuse and psychosis (Manning and Stickley, 2009) as well as other types of traumatic experience and psychosis, for example, being held hostage (Siegel, 1984). A recent meta-analysis of 41 studies found a significant relationship between adversity in childhood and risk of psychosis later in life (Varese et al., 2012b). The types of traumatic childhood experience that were included in the review were emotional, physical and sexual abuse, neglect, bullying and death of a parent (Varese et al., 2012b). It was found that each of these factors was significantly related to psychosis apart from parental death (Varese et al., 2012b). Loss of a parent was also found to be significantly related to psychosis when the data from one paper with outlying results was removed from the analysis (Varese et al., 2012b). This review, therefore, concluded that the experience of trauma in childhood is strongly related to an increased risk for psychosis (Varese et al., 2012b). Specific types of traumatic experience have also been found to relate to specific psychotic experiences. It has been found that sexual abuse is related to voice hearing whereas growing up in care was related to experience of paranoia (Bentall et al., 2012). A longitudinal study found that experience of psychosis in children aged twelve was particularly associated with traumatic events characterised by intention to harm (Arseneault et al., 2011). This suggests that it could be the perception of threat that is of significance to
the development of psychotic experiences (Arseneault et al., 2011). Experiences such as this could lead to beliefs that others are dangerous and increase the likelihood that future experiences will be interpreted as threatening (Freeman et al., 2002).

The trauma research demonstrates the importance of asking people who are experiencing psychosis about their experiences in childhood and offering psychological therapy should trauma be disclosed (Read and Ross, 2003). Unfortunately it appears that people with psychosis are not often asked about their experience of trauma, even after years of engagement with a mental health service (Read et al., 2006). As it may be difficult to disclose such things without being asked about it, individuals who have suffered trauma often go a long time without discussing this with anyone. One study reported the average length of time prior to disclosure to be 16.3 years (Read et al., 2006). Therefore, training mental health staff to ask about trauma and to provide support to those who have suffered it, is extremely important (Read et al., 2006).

Early experiences in interpersonal relationships and with caregivers lead to representations of, and expectations for, relationships later in life (Shaver and Mikulincer, 2002). Where caregivers are readily available and responsive to the child’s needs, then a secure attachment style is likely to develop (Shaver and Mikulincer, 2002). However, where this is not the case then an insecure attachment style may develop which has been proposed to have two main forms. If proximity to the caregiver can be sought, then the child may exaggerate distress in order to be attended to and seek to be as close as possible to the caregiver. This style includes hypervigilance for signs of threat which may include rejection from others. These patterns of behaviour are associated with an anxious attachment style (Shaver and Mikulincer, 2002). Conversely, if proximity cannot be sought then an avoidant attachment style may develop. This is characterised by avoidance of close relationships and attempts to manage distress alone or to suppress negative emotions (Shaver and Mikulincer, 2002). Due to the link between adverse early experiences and psychosis (e.g. Varese et al., 2012b), insecure attachment styles seem likely to be a feature of psychosis. Such attachment styles could influence the experience of psychosis due to developing perceptions of others as untrustworthy or dangerous (Garety et al., 2001; Morrison, 2001).
In support of this view it has been found that attachment avoidance is associated with overall symptoms of psychosis, positive, negative and general symptoms and specifically with paranoia (Berry et al., 2008). These associations were found to be independent of overall severity of symptoms (Berry et al., 2008). Similarly, attachment anxiety has been found to relate to both severity of and distress in relation to voice hearing (Berry et al., 2012). These findings could relate to the above mentioned research finding that specific traumatic experiences related to specific symptom dimensions (Bentall et al., 2012). Attachment style could be a possible mediator of this relationship. These findings also have implications for engagement with services as avoidant attachment has been found to relate to reduced therapeutic alliance (Berry et al., 2008).

It is thought that appraisal of experiences will also determine emotional and behavioural responses (Morrison, 1998). If the appraisal is of a catastrophic nature whereby immediate threat is perceived, then this is likely to result in greater distress and disruption than an appraisal that recognises the experience as normal (Morrison, 1998). It has been found that distress can itself bring on experiences such as hearing voices (Nayani and David, 1996). This, therefore, creates a feedback loop and could be working to maintain the experience of psychosis (Morrison, 1998). The other way that this cycle could be maintained is through the cognitive and behavioural responses that the misinterpretation elicits (Morrison, 1998).

Similarly, the cognitive model of voices proposed by Chadwick and Birchwood (1994) suggests that appraisals of the voice’s power (omnipotence) and disposition are associated with distress and behavioural responses. Appraisals related to the voices intentions as either good or evil (benevolence and malevolence) could sometimes be understood in terms of the content of the voice however, this was not always the case. In some cases, although voice content was threatening or insulting, voices were appraised as benevolent (Chadwick and Birchwood, 1994). Therefore, it appears to be the beliefs about the identity and power of the voice that are more important for understanding affective and behavioural responses, rather than voice content (Chadwick and Birchwood, 1994). The more powerful the voice is appraised to be and the higher the level of perceived expressed emotion from the voice, the greater the level of depression and suicidal ideation in the voice hearer (Connor and
Birchwood, 2013). This association was found to be independent of overall symptom severity and voice frequency (Connor and Birchwood, 2013). Appraisals of malevolence and omnipotence have consistently been found to be positively correlated with both depression and anxiety (e.g. Chadwick et al., 2000).

Negative symptoms can also be understood within a cognitive framework (Grant and Beck, 2009). Defeatist beliefs were found to be higher in a group of participants with a diagnosis of schizophrenia than in a non-clinical sample (Grant and Beck, 2009). Such defeatist beliefs were found to act as a mediator between cognitive difficulties and both negative symptoms and functioning (Grant and Beck, 2009). It is proposed that beliefs relating to anticipation of displeasure, failure and lack of resources contribute to diminished activity as the person feels that they won't enjoy it, won't be good enough at it or it will be too much for them to manage (Rector et al., 2005).

Cognitive theories generally focus on the content of thoughts and appraisals rather than on other aspects of cognition such as attention or the processes involved in cognition (Wells and Matthews, 1996). It has been suggested that attention plays an important role in psychological difficulties, as this determines which aspects of the environment will be focussed on and processed (Wells and Matthews, 1994a). The Self-Regulatory Executive Function (S-REF) model provides a metacognitive, information processing model of psychological distress (Wells and Matthews, 1994a). It is suggested that unhelpful and perseverative forms of information processing, such as rumination, serve to extend processing which leads to distress. This is known as the Cognitive Attentional Syndrome (CAS) and includes self-regulatory strategies such as rumination and worry, excessive self-focus and other attentional biases (Wells and Matthews, 1994a). If the CAS is activated, this prolongs processing and therefore arousal and leads to psychological difficulties. This is in contrast to a transient stimulus-response experience of emotion that declines naturally. The online processing of the CAS interacts with knowledge and beliefs held in long term memory. This includes beliefs about the self and about thought processing strategies. This is the "meta-level" of the model. Conflicting metacognitive beliefs, such as believing that worry helps to solve problems but also that it is dangerous, can also serve to maintain
difficulties (Wells and Matthews, 1994a). Therefore, it is beliefs about worry, rather than the content of the worry that is significant in the model.

It has been found that worry is related both to the onset and maintenance of paranoid ideation in a large longitudinal study in the general population (Freeman et al., 2012). Similarly, maintenance of persecutory beliefs in a sample of participants with a schizophrenia diagnosis was found to be associated with worry (Vorontsova et al., 2013). This suggests that extended processing could be implicated in the experience of psychosis as the S-REF model would suggest (Wells and Matthews, 1994a).

The likelihood of an intrusion being attributed to an external source could be influenced by metacognitive beliefs (Jones and Fernyhough, 2006). For instance, if it is believed that it is dangerous for thoughts to be out of control, then a thought experienced as intrusive may be attributed externally to reduce dissonance between the metacognitive belief and the experience (Jones and Fernyhough, 2006). In support of this theory it has been found that participants hearing voices had a more negative attitude towards intrusive thoughts and experienced them as more uncontrollable than control groups (Morrison and Baker, 2000).

However, a meta-analysis designed to test the association between metacognitive beliefs and hallucinations did not find strong support for this theory (Varese and Bentall, 2011). It was found that when results from both clinical and at risk groups were combined, the expected association between hallucinations and beliefs such as regarding the uncontrollability and danger of thoughts were found. When these samples were compared however, the results in the analogue sample remained significant while many in the clinical sample did not. Further, when other symptoms such as depression and unusual beliefs were controlled for, effect sizes were again reduced. The authors concluded that the association between metacognitive beliefs and hallucinatory experiences is not as strong as previously thought (Varese and Bentall, 2011). It is possible that the relationship is actually between metacognition and general levels of distress, rather than directly with unusual experiences (Brett et al., 2009). A recent meta-analysis has supported this idea. It was found that levels of unhelpful metacognitive beliefs, such as positive beliefs about worry and negative beliefs about uncontrollability and danger, were higher in participants experiencing
psychosis than in a non-clinical sample (Sellers et al., 2016). However, few differences were observed in comparison to a group with other emotional disorders (Sellers et al., 2016).

It has been found that high levels of metacognitive beliefs are associated with need for care in people experiencing psychosis, demonstrating the importance and applicability of the S-REF model in this client group (Brett et al., 2009). However, it is possible that this operates indirectly through general distress. This supports models of psychosis that suggest it is not distinctly different from other psychological difficulties, such as anxiety (Morrison, 1998).

1.3.4 Psychological treatments

1.3.4.1 Cognitive Behavioural Therapy

Psychological models such as these can be used as a foundation for treatment of psychosis based on talking therapy, namely cognitive behavioural therapy for psychosis (CBTp). This is recommended by the NICE guidelines for everyone experiencing psychosis, including within inpatient settings (NICE, 2014). However, a recent audit found that less than half of people with a diagnosis of schizophrenia were receiving CBT (PHE, 2016). Given issues with efficacy and acceptability of antipsychotic medications as discussed above (Lieberman et al., 2005) as well as service users’ rights to be allowed to make informed choices about their care (Hutton et al., 2012), developing effective therapies for psychosis is essential.

In use for over fifty years, cognitive therapy has been defined as “an active, directive, time-limited, structured approach used to treat a variety of psychiatric disorders” (Beck et al., 1979, p.3). Key elements include creating a shared formulation of the problem, challenging of unhelpful thoughts and conducting behavioural experiments (Morrison et al., 2004). Homework tasks should be used so both client and therapist can continue the work between sessions (Morrison et al., 2004). Emphasis is also placed on the importance of building a strong therapeutic relationship, use of normalising and on collaboration between client and therapist (Morrison et al., 2004).

A recent meta-analysis including 48 studies directly comparing CBTp with other psychological therapies found CBT to be more effective in comparison to the pooled effect of
all other therapies for overall and positive symptoms but not for negative symptoms (Turner et al., 2014). Social skills’ training was found to be more effective for negative symptoms than all other therapies combined. Befriending was found to be significantly less effective for treating overall symptoms (Turner et al., 2014). When looking at different types of CBTp, it was found that it was a generic subtype that was more effective as opposed to a coping enhancement subtype, which was not found to be more effective in comparison to other treatments (Turner et al., 2014). Although conducting sensitivity analyses resulted in the effect of CBTp on overall symptoms being no longer significant, the effect on positive symptoms was found to be robust (Turner et al., 2014). This suggests that CBTp does show advantage over other types of therapy, in particular for the treatment of positive symptoms.

CBT has also been found to effectively reduce the rate of transition to psychosis amongst those at high risk, with results being maintained up to twenty-four months post-treatment (Hutton and Taylor, 2014).

Other researchers have argued that CBTp is not as effective as claimed and that weak findings are being overvalued (McKenna and Kingdon, 2013). Two recent meta-analyses both concluded that CBT did not demonstrate increased efficacy over other therapies. The first reported no benefit in terms of general psychiatric symptoms, no short or medium term effect on positive symptoms but a small effect in the longer term; and no beneficial outcome on rates of relapse or hospitalisation (Jones et al., 2012). Results were also found to be variable dependent on which outcome measures for the same variable were used (Jones et al., 2012). The second concluded that CBT only had a small effect on all symptom groups analysed (Jauhar et al., 2014). They also took into consideration sources of bias and found that effect sizes were further reduced when including only studies whose outcome measures were assessed by researchers blind to treatment allocation (Jauhar et al., 2014). They went on to suggest that the continued Government backing of CBT in the light of results such as this is “puzzling” (Jauhar et al., 2014, p. 27). However, inspection of the forest plots clearly shows a significant effect in favour of CBT for overall symptoms, positive symptoms and negative symptoms. Including only the studies with blind assessments does significantly
reduce effect sizes, however, it would appear that the effect remains significant for overall symptoms (Jauhar et al., 2014).

The impact of CBTp on negative symptoms would appear from the above studies to be less consistent. One study comparing CBT with an active control, cognitive remediation, on the treatment of negative symptoms did find CBT to be effective (Klingberg et al., 2011). However, they found that the cognitive remediation was even more effective. In a test of an adapted form of CBT intended to build participants self-confidence so that they might feel more able to function and participate socially, it was found that this led to improvements in overall functioning, positive symptoms and the negative symptom domains of loss of pleasure and social withdrawal (Grant et al., 2012). Improvements were not found, however, for other aspects of negative symptoms including affective flattening and reduced speech. This is, therefore, a promising approach, however, it is not known if negative symptoms improved directly or as a result of improvements in positive symptoms and, as not all negative symptom domains were improved, further research is needed (Grant et al., 2012).

Unfortunately transferring CBTp to everyday practice remains a problem. Most research studies are conducted to a clear protocol by highly specialist staff and so it is unclear if the evidence base extends to routine clinical practice (Thomas, 2015). The challenge is to identify precisely which components of CBTp are effective and to make its delivery more accessible (Thomas, 2015). Attempts have been made to reach a consensus regarding the essential elements of CBTp by consulting experts in the field (Morrison and Barratt, 2010). Agreement was reached that there should be an emphasis on engagement and collaboration with the client, a formulation should be developed and used to inform therapy, homework tasks should be utilised, specific cognitive and behavioural change strategies should be used and therapy should have a recovery-oriented approach, aiming to reduce distress and improve quality of life (Morrison and Barratt, 2010). Further, it was agreed that the therapists themselves should have a certain set of values, such as believing that unusual experiences commonly occur in the general population and are understandable reactions to stress (Morrison and Barratt, 2010). As these results were achieved through consultation with experts in the field of CBTp, specifically those who had worked on research trials, the
study should be replicated in a wider range of mental health professionals. This may help to clarify if there is any particular element that is not transferring from research to practice.

Similar factors have been identified in a qualitative synthesis of service users’ experiences of receiving CBT (Wood et al., 2015). Service users’ also identified the importance of collaboration and the therapeutic relationship, qualities of the therapist themselves such as being non-judgemental, use of a formulation and learning new techniques for managing difficulties as well as importance being placed on hope and recovery (Wood et al., 2015). Participants also spoke of some of the difficulties of undergoing CBT, such as understanding the model, disclosing personal information and the challenges of completing homework tasks (Wood et al., 2015). These are important issues for therapists to be aware of to avoid disengagement.

Others have suggested that it is simply the non-specific aspects of therapy that are beneficial rather than cognitive-behavioural techniques (Newton-Howes and Wood, 2013). This implies that less specialist therapeutic approaches, such as supportive counselling, should be equally as effective as CBT (Newton-Howes and Wood, 2013). In a direct test of this hypothesis, a meta-analysis has been conducted of studies comparing CBT with non-cognitive therapies, predominantly supportive counselling as well as befriending and psychoeducation (Newton-Howes and Wood, 2013). The results indicated that CBT did not outperform the other therapies. This suggested that it may be the non-specific aspects of therapy that are of most benefit and led to the conclusion that CBT need not be the psychological treatment of choice (Newton-Howes and Wood, 2013). However, others have re-analysed the data in this review, corrected some errors and given consideration to the “dose” of CBT given (Hutton, 2013). This re-analysis was found to slightly favour CBT and exclusion of low dose studies further strengthened this relationship (Hutton, 2013). Further, Newton-Howes and Wood (2013) did not look at follow up data in their analysis, an important outcome. Analysis of this data demonstrated a strongly favourable outcome for CBT, regardless of dose (Hutton, 2013). Other therapies, such as supportive counselling and social skills training are not currently recommended by the NICE guidelines (NICE, 2014).
Although non-specific aspects, such as a warm, non-judgemental relationship, may be of short-term benefit, it seems that these benefits are not sustained in the longer term. A comparison of CBT and befriending found improvements in both groups at the end of treatment however, the improvements were not sustained in the befriending group at a nine month post-treatment follow up (Sensky et al., 2000) or at a further follow up five years later (Turkington et al., 2008). Benefits were found in the CBT group for both overall and negative symptoms. The sustained benefits of CBT seen at the five year follow up were particularly robust in relation to negative symptoms (Turkington et al., 2008), in contrast to the results discussed above. Further evidence in support of the specific aspects of CBT is that both therapists and service users have identified cognitive-behavioural change strategies as important elements of therapy (Morrison and Barratt, 2010; Wood et al., 2015).

Unfortunately, CBTp studies have generally failed to capture any adverse effects of therapy (Jones et al., 2012; Spencer and Turkington, 2010). A recent meta-analysis of CBT for psychosis prevention studies attempted to include adverse effects as a secondary outcome (Hutton and Taylor, 2014). Data on adverse effects was found to be not frequently reported and a significant proportion was missing meaning that no conclusions could be drawn (Hutton and Taylor, 2014). However, where adverse effects were reported, no evidence was found for a detrimental effect of CBT on anxiety, depression or suicidal ideation (Hutton and Taylor, 2014).

Declining to take antipsychotic medication is often seen as rejection of treatment but this should not be the case as other forms of treatment may be acceptable to the individual (Hutton et al., 2012). There is mounting evidence for the efficacy of CBT for people experiencing psychosis who decide not to take medication. A case study of CBT with a client experiencing distressing auditory and visual hallucinations demonstrated that both the frequency of the experiences and levels of distress were reduced over the course of therapy, in the absence of medication (Hutton et al., 2012). In a larger trial of 74 participants who were all choosing not to take antipsychotic medication, those allocated to CBT showed improvements on overall, positive and general symptoms compared to those receiving treatment as usual only (Morrison et al., 2014). Improvements were also found for social
functioning and some specific aspects of unusual beliefs and voice hearing. No significant improvement was seen for negative symptoms, quality of life, depression or anxiety (Morrison et al., 2014). This study demonstrated that those clients often viewed as reluctant to engage with services and treatment were willing to participate with the trial and, therefore, it appears that they viewed CBT as an acceptable treatment alternative. Further, neither group of participants significantly deteriorated over the trial period, despite the absence of antipsychotic medication (Morrison et al., 2014).

As there is some conflict around the efficacy of CBT for psychosis (e.g. McKenna and Kingdon, 2013), further developments are needed to make improvements to the techniques used. Based on the evidence that people with psychosis may have biases in their reasoning processes that lead them to form and maintain unusual beliefs (e.g. Garety et al., 2001), an intervention has been tested based on this (Garety et al., 2015). Participants with a diagnosis of schizophrenia who reported an unusual belief held with strong conviction were recruited for the study (Garety et al., 2015). Participants in the intervention arm received a brief, computerised reasoning intervention. The package provided participants with information about jumping to conclusions and belief inflexibility, taught new strategies and presented interactive tasks (Garety et al., 2015). The control group completed interactive computer tasks that did not contain any material relating to reasoning biases. Following the intervention, participants demonstrated improvements in data gathering and belief flexibility as well as improvements in paranoia (Garety et al., 2015). Further, the reduction in paranoia was found to be partially mediated by improvements in belief flexibility. Jumping to conclusions reasoning biases did not mediate this relationship (Garety et al., 2015). This theory driven approach has, therefore, demonstrated promising results and test of a longer intervention is warranted.

Improving reasoning biases is also one of five modules in a new “Feeling Safe” Programme currently at the pilot stages of development (Freeman et al., 2016b). The other modules are improving sleep, improving worry, improving self-beliefs and feeling safer through reducing safety seeking behaviours (Freeman et al., 2016b). The latter will be discussed in more detail in the following sections. This approach is flexible in that it allows participants to
choose which modules they would like to complete and in what order. An initial pilot of the
programme with eleven participants has reported improvements in unusual beliefs as well as
overall symptoms and well-being (Freeman et al., 2016b). There were also reductions in
belief conviction, distress and medication use. Importantly, participants also reported being
satisfied with the programme (Freeman et al., 2016b). As this was a small study and there
was no control group, a larger scale RCT is required in order to be able to draw firm
conclusions concerning the efficacy and generalisability of this programme. These initial
results are, however, positive.

It has been pointed out that use of overall, positive and negative symptoms as primary
outcomes in research as in many of the studies discussed above, is removed from the
principles of CBT which is primarily concerned with targeting distress (Birchwood and
Trower, 2006). Therefore, future trials of CBT should focus primarily on distress levels,
particularly depression and social anxiety, although it is hoped this would also have the
secondary effect of reducing psychosis (Birchwood and Trower, 2006).

1.3.4.2 Metacognitive therapy

Treatment approaches derived from metacognitive theory and the S-REF model indicate that
dysfunctional information processing strategies, such as worry and rumination, need to be
replaced with strategies that break off extended processing and reduce self-focus (Wells and
Matthews, 1994a). Metacognitive Therapy (MCT) aims to help clients to identify and modify
unhelpful metacognitive beliefs and to develop new strategies for cognitive control (Fisher
and Wells, 2009). Techniques include worry postponement, attention training and detached
mindfulness (Fisher and Wells, 2009). This is in contrast to challenging the content of
beliefs as is seen in CBT. Therefore, rather than positive symptoms being the target of
treatment, it is aimed to improve flexibility of information processing, reduce unhelpful
strategies, such as worry, and challenge metacognitive beliefs (Hutton et al., 2014). There
is emerging evidence that MCT can be used to effectively treat psychosis. A case series of
three participants experiencing psychosis that had not responded to medication found that
two out of three participants benefited from clinically significant reductions in the severity of
their unusual beliefs (Hutton et al., 2014). All participants experienced improvements in both
positive and negative symptoms, however, it is noted that one participant worsened in terms of depression, anxiety and perceptions of recovery (Hutton et al., 2014). Therefore, future MCT trials should ensure that possible adverse effects are monitored and reasons for this investigated.

An intervention designed to treat persecutory beliefs by targeting worry found that this effectively reduced worry, paranoia and the associated distress in a pilot trial (Foster et al., 2010). An extension of this trial in a larger sample replicated these findings, demonstrating reductions in worry, persecutory beliefs, overall symptoms and well-being (Freeman et al., 2015). Although this was a cognitive behavioural intervention, this suggests that metacognitive processes such as worry do contribute to the maintenance of unusual beliefs and distress.

Attention training technique (ATT), a specific treatment approach in MCT, has also been studied in relation to psychotic experiences. ATT aims to improve attentional control and reduce self-focus (Fisher and Wells, 2009). Clients practice focusing attention in different ways on external targets, not as a distraction technique but in order to develop greater metacognitive flexibility (Fisher and Wells, 2009). A single case study has demonstrated that ATT can be used effectively to reduce voice related distress, improve functioning and enhance perceived control over voices (Valmaggia et al., 2007).

A meta-analysis of MCT for psychosis was forced to conclude that there is no evidence for the efficacy of this approach for either overall positive symptoms or for unusual beliefs specifically (van Oosterhout et al., 2015). However, this review included only studies using a specific type of metacognitive therapy (Moritz and Woodward, 2007). The therapy is delivered in a group setting and focusses on identifying and challenging biases in cognition, such as jumping to conclusions (Moritz and Woodward, 2007). There is no targeting of unhelpful or extended processing styles, attention training or detached mindfulness and, therefore, a future review of MCT should expand the definition used to be inclusive of these techniques which may improve the reliability of effect size estimates.
1.3.4.3. Third wave therapies

In brief, other psychological treatment options include Acceptance and Commitment Therapy (ACT), which aims to help clients to notice and accept any unpleasant thoughts and feelings, rather than trying to control or avoid them. ACT has been found to be associated with reduced likelihood of hospitalisation and reduced conviction in unusual beliefs and voices (Bach and Hayes, 2002). There were also reductions in levels of distress; however, this was not significantly different to a control group receiving treatment as usual only (Bach and Hayes, 2002). Reduction in the number of symptoms experienced was not observed and, therefore, changes seem to have been brought about as a result of accepting their presence (Bach and Hayes, 2002). At a one year follow up, ACT continued to be associated with reduced risk of hospitalisation as compared to treatment as usual (TAU), indicating long lasting results (Bach et al., 2012). This study used only four treatment sessions, each under one hour duration (Bach and Hayes, 2002), and, therefore, a longer term study is needed to determine what the most therapeutic “dose” of ACT might be.

An element of ACT relates to mindfulness, learning to observe thoughts and feelings and understanding that they are temporary and do not have to be responded to (Segal et al., 2012). Recently, mindfulness practice alone has also been used as a treatment for distressing voices. In a study of two participants who each received twelve sessions of mindfulness based training, it was found that their distress and belief conviction in voices was reduced (Newman-Taylor et al., 2009). Again, this change appears to have occurred without a concomitant reduction in voices, however, this was not measured formally in the study. The participants reported that the skills they had learned allowed them to be able to function more effectively without the voices taking over their lives (Newman-Taylor et al., 2009). However, a randomised study where eleven participants were allocated to a mindfulness group and eleven to a waiting list control arm, found no significant difference between the two groups on any of their outcome measures (Chadwick et al., 2009). There were trends for greater improvements for participants in the mindfulness group and post hoc analysis found significant differences on overall clinical functioning and a measure of mindfulness. Therefore, it seems that this is a potentially useful and safe approach but more
research in larger sample sizes is required (Chadwick et al., 2009). Similarly, a recent review of the mindfulness based interventions literature reported that there were not enough randomised controlled trials (RCT’s) available to be able to draw conclusions regarding efficacy (Strauss et al., 2015). However, the review did find that trait mindfulness was associated with reduced distress in relation to voices and improved quality of life. Further, the results suggest that participants felt able to engage with mindfulness practice, found the interventions acceptable and did not suffer any adverse effects (Strauss et al., 2015).

1.3.4.4 Recovery

In contrast to the negative view of the early psychiatrists that schizophrenia would follow a chronic and degenerative course, there is now much more of an emphasis on a recovery-oriented approach (NICE, 2014). However, a review of prospective studies with a minimum follow up period of ten years was unable to conclude with an optimistic message (Bromet et al., 2005). It was found that more than half of the participants in the studies they identified had not recovered or had experienced a relapse over the follow up period (Bromet et al., 2005). This suggests that there is still work to be done on improving our understanding of the experience of psychosis and developing treatment approaches with an emphasis on recovery. It also suggests that conceptualising recovery in the most meaningful way possible is important and, for service users, this may not relate to relapse of symptoms. A user led qualitative study designed to understand recovery from a service user perspective concluded that recovery is an idiosyncratic process (Pitt et al., 2007). Important concepts were rebuilding the self, including improving self-esteem and feelings of control, rebuilding life, including accessing personally meaningful activities, and hope for a better future, including reduction of stigma and, in support of the above, improved treatment choice (Pitt et al., 2007). A much larger study consulted 381 experts by experience and reached a similar consensus that recovery relates to improving quality of life and self-esteem, accessing support and engaging with meaningful activities, as well as increasing understanding of one’s own difficulties and how to manage them (Law and Morrison, 2014). However, others have found that reduction of symptoms and distress is also important to service users’ conceptualisations of recovery (Wood et al., 2010). It could be that research trials and
clinical practice should make assessment of recovery more holistic so as to capture elements of symptom reduction but also other elements that have been identified as important such as self-esteem, hope and engagement with life.

1.4 Common responses to unusual experiences

1.4.1 Safety seeking behaviours in anxiety

As described above, within a cognitive framework anxiety is thought to arise as a result of appraisals made in any given situation or in response to intrusions into awareness of physical sensations, thoughts or feelings (Clark, 1986). In particular, if such appraisals are of a catastrophic or threatening nature. For example, experiencing palpitations and interpreting this as sign of imminent heart attack (Clark, 1986). As a result of threat appraisals such as this, action will be taken to protect against the perceived threat (Salkovskis, 1991). This is known as safety seeking behaviour and is understandable in the context of very strong conviction that harm is imminent (Salkovskis, 1991). Salkovskis et al (1996) proposed three categories of safety seeking behaviours. These are avoidance of the feared situation, escape from it and behaviours carried out to cope whilst in the situation (Salkovskis et al., 1996). Such safety seeking behaviour can contribute to the maintenance of anxiety as it is believed that harm did not occur only because the safety seeking response was employed (Salkovskis, 1991). For example, for someone who interprets their palpitations as a sign that they are about to have a heart attack, they may immediately lie down to try and prevent this from happening. This is interpreted as a “near miss”, that a heart attack was only prevented because they lay down and anxiety in the situation is reduced (Salkovskis, 1991). However, anxiety in the longer term is maintained as the belief that palpitations is a sign of imminent threat has not been disconfirmed (Salkovskis, 1991).

Safety seeking have been associated with many anxiety disorders including panic (Clark, 1986), health anxiety (Abramowitz and Moore, 2007), obsessive compulsive disorder (Deacon and Maack, 2008) and social phobia (Korte et al., 2015).

In addition to interfering with the disconfirmation of threat beliefs as described above, safety seeking responses are thought to contribute to the maintenance of anxiety in several other ways. Safety seeking could increase the likelihood of negative consequences. For
example, avoiding eye contact in a social situation for someone experiencing social anxiety and fears of rejection could actually serve to increase the possibility of negative interactions with others (McManus et al., 2008). Additionally, safety seeking responses could increase the awareness of threats. For example, people worried about their health are known to check their bodies for signs of illness but this could have the effect of increasing awareness of normal bodily sensations (Olatunji et al., 2011).

Safety seeking behaviours are often identified as a target in CBT and the client is encouraged to drop such responses, such as through maintaining not avoiding eye contact for those who are socially anxious (Wells et al., 1996). Many therapeutic studies provide evidence for the cognitive behavioural view of the maintaining role that safety seeking behaviours play in distress. In a study of panic disorder, participants were exposed to their feared situation (Salkovskis et al., 1999). Half were allowed to continue with their usual safety seeking responses whilst the other half were asked to reduce these behaviours. Anxiety and catastrophic misinterpretations were reduced in the group asked to drop their safety behaviours, suggesting that these behaviours are involved in maintaining anxiety as predicted (Salkovskis et al., 1999).

Damaging effects of safety seeking behaviours have been found simply when the individual knows the response is available to them, without them actually having to use the response. In a study of participants with claustrophobia, no differences were found between a group allowed to use safety behaviours during an exposure task and a group with safety behaviours available to them but not actually used (Powers et al., 2004). The exposure only group demonstrated double the treatment response rate of the other two groups (Powers et al., 2004). This could demonstrate a cognitive element to safety seeking responses in that focusing on the available response may have reduced resources for processing evidence that could disconfirm threat beliefs (Sloan and Telch, 2002).

However, some research has provided results that contradict these findings and has led to suggestion that safety seeking behaviours may not always be unhelpful (Rachman et al., 2008). For example, participants with snake phobia were exposed to a snake either in the presence of safety seeking behaviours or the absence (exposure only). It was found that
anxiety reduced in both groups and that both groups were able to approach the snake equally as closely in a post-treatment session without any safety gear. Changes in cognitions were also observed in both groups (Milosevic and Radomsky, 2008). Therefore, it is possible that safety seeking behaviours may be carefully used in therapy to enhance, rather than detract from, the efficacy of the intervention (Rachman et al., 2008).

**1.4.2 Safety seeking behaviours in psychosis**

As it is proposed that the same mechanisms underlie the experience of psychosis, safety seeking behaviours have also been implicated as a maintaining factor here (Garety et al., 2001; Morrison, 1998). Research has found that people who hear voices do use safety seeking behaviours such as avoidance and escape, and believe that by doing this they are keeping themselves safe from harm (Hacker et al., 2008). The same findings have also been reported in relation to persecutory beliefs (Freeman et al., 2001). Here, 100% of participants reported using safety seeking behaviours, most frequently avoidance (Freeman et al., 2001). Escape from situations and use of safety seeking behaviours in situation were also found, in line with the three categories proposed by Salkovskis et al (1996).

In relation to both voice hearing and beliefs about persecution, it has been found that use of safety seeking behaviours is associated with higher levels of anxiety (Freeman et al., 2007; Hacker et al., 2008). This supports the view that such responses are being used as a result of fear of threat (Freeman et al., 2007). Furthermore, it has been found that the choice of safety seeking behaviour used relates meaningfully to the appraisal of threat as would be expected on the basis of the cognitive model (Nothard et al., 2008). For example, holding beliefs about being killed and pretending to be dead to guard against this (Nothard et al., 2008). Similarly, beliefs about voice malevolence are consistently associated with behaviours intended to resist the voice whereas voices believed to be benevolent are engaged with (e.g. Chadwick et al., 2000). Finally, the higher the conviction in the threat belief, the greater the likelihood that it will be acted on through safety seeking (Moritz and Van Quaquebeke, 2014). Threat appraisals have also been found to mediate the relationship between safety seeking behaviours and distress, indicating the importance of both of these factors in psychosis (Gaynor et al., 2013).
In a non-clinical sample, it has been found that use of safety seeking behaviours, in particular avoidance, was related to a greater incidence of psychotic-like experiences associated with voice hearing and unusual beliefs (Campbell and Morrison, 2007). There was also an association between safety seeking and distress, both in terms of general distress and distress associated with unusual experiences (Campbell and Morrison, 2007).

It has been suggested that difficulties that are interpreted as negative symptoms of psychosis, such as apparent loss of interest in social situations, could in fact be as a result of safety seeking behaviours such as avoidance (Freeman et al., 2001). For example, someone may avoid taking pleasure in activities if this was something that had resulted in punishment earlier in their life (Morrison et al., 2004). Or develop blunted affect to avoid appearing distressed in front of care teams, possibly resulting in hospital admission or medication changes (Morrison et al., 2004). Similarly, the cognitive model of negative symptoms suggested by Grant and Beck (2009) suggests that negative symptoms arise as a result of defeatist beliefs. Someone who believes that they will fail may not see the point in trying and so appear anhedonic and low in motivation (Rector et al., 2005). However, safety seeking and negative symptoms have not been found to be related (Freeman et al., 2007).

The exception was alogia but rather than the predicted positive correlation, a negative association was found (Freeman et al., 2007). This suggests safety seeking is associated with increased activity. Depression, as well as anxiety, could be associated with safety seeking behaviours due to the restrictiveness they cause, such as not being able to leave the house (Freeman et al., 2002).

As with the anxiety literature, further support for the cognitive model is provided by therapeutic studies. For example, a case study of a therapeutic intervention with a participant suffering with distressing visual hallucinations, which she would interpret as dangerous and therefore escape from, has been presented (O'Brien and Johns, 2013). By encouraging the participant to drop her safety seeking behaviours and gradually begin to stay in the room with the snakes and insects that she could see, not only was her distress reduced but the frequency of the experience also reduced (O'Brien and Johns, 2013).

Similarly, an experimental study using virtual reality has recently been conducted to support
participants with persecutory beliefs to drop their safety seeking behaviours in a social situation (Freeman et al., 2016a). It was found that this intervention resulted in reductions in threat beliefs and distress levels (Freeman et al., 2016a). Use of virtual reality may help participants to have the confidence to drop safety seeking behaviours that they normally rely on and so may be an effective treatment tool (Freeman et al., 2016a). Experts in the field agree that identifying and modifying safety seeking behaviours is an essential component of CBTp (Morrison and Barratt, 2010).

Therefore, it appears that safety seeking behaviours play a role in maintaining experiences of psychosis and related distress as has been proposed. It also appears that they are a significant factor in determining whether or not support from mental health services is required (Krabbendam et al., 2005). It has been found that those who used response styles related to their unusual experiences were more likely to be accessing mental health services than those who did not, and this was independent of the level of psychotic experiences (Krabbendam et al., 2005). Similarly, another study found that although those who used mental health services did not differ from those who did not in terms of number of symptoms, they did differ on the number of safety seeking behaviours used, threat appraisals and levels of distress (Gaynor et al., 2013).

Safety seeking responses in relation to psychosis and the association with distress will be discussed in more detail in the following chapter.

1.4.3 Coping

In contrast to the above, if the same cognitive or behavioural response was being used simply to manage anxiety, as opposed to taking action to prevent a feared catastrophic outcome, then this would be classed as coping, considered adaptive and not serving to maintain catastrophic misinterpretations in the way described above (Salkovskis, 1991). For the individual who is coping in this way, this suggests that they are interpreting their experiences for what they are, as normal symptoms of anxiety, rather than as a sign of impending threat (Salkovskis, 1991). The Oxford Dictionary definition of coping is that a person is able to “deal effectively” with a stressful event (Oxford University Press, 2016). The emphasis is that coping is an adaptive response to a stressful situation.
A prominent model of coping has been proposed by Lazarus and Folkman (1984). They conceptualise coping as "constantly changing cognitive and behavioural efforts to manage specific external and / or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus and Folkman, 1984, p. 141). This definition, therefore, does not include reference to the efficacy of coping strategies (Lazarus and Folkman, 1984).

A key feature of this definition is that it is seen as a process, as fluid and changeable, rather than static (Lazarus and Folkman, 1984). This is partially because emphasis is placed on contextual factors. That is, any stressful situation can only be understood by giving consideration to the person and to the environment (Lazarus and Folkman, 1987). Therefore, coping is seen as changeable across person, place and time (Lazarus and Folkman, 1987).

Reference is made to cognitive and behavioural coping strategies (Lazarus and Folkman, 1984). Cognitive strategies may include visualising the situation being better or trying to put the problem out of one’s mind (Holahan et al., 1996). Behavioural strategies could be seeking social support or active problem solving (Holahan et al., 1996).

A further central feature of the model is the role of appraisal (Lazarus and Folkman, 1987). It is suggested that there are two significant appraisals that are made that influence coping efficacy. The primary appraisal relates to determining whether there is a threat to safety or well-being (Lazarus and Folkman, 1987). If a situation is appraised as threatening, then this will be experienced as stressful. How much is perceived to be at stake in the situation will determine the degree of distress that is experienced (Lazarus and Folkman, 1987).

The secondary appraisal relates to evaluating what can be done to manage the stressful situation, in terms of availability of coping options and degree of perceived control (Lazarus and Folkman, 1987). This appraisal will also influence distress levels since a situation appraised as threatening but controllable is likely to be experienced as less stressful (Lazarus and Folkman, 1987).

Efficacy of coping activity may be dependent on the accuracy of each of these appraisals and the goodness of fit between them, suggesting that care should be taken in making generalisations that any given coping strategy is helpful or unhelpful (Lazarus and Folkman,
Therefore, study of individual coping strategies is not likely to be a beneficial way to proceed, one review finding more than four hundred different coping styles described in the literature (Skinner et al., 2003). Attempts have been made to group strategies together using different higher order categories, for example, problem-oriented and emotion-oriented (Endler and Parker, 1990), and approach and avoidance (Holahan et al., 1996), but these have failed to provide a clearly defined, mutually exclusive and exhaustive conceptualisation (Skinner et al., 2003).

Despite this, many studies make use of the problem and emotion-oriented coping taxonomy. Problem focused coping consists of problem solving and task-oriented ways of responding, whereas emotion-focused coping refers to internal, self-focused ways of responding (Endler and Parker, 1990). A further strategy that is considered important and can be either problem or emotion-focused is avoidance (Endler and Parker, 1990). It is thought that emotion coping is associated with higher levels of depression and anxiety while the opposite is true for problem-focused coping (Endler and Parker, 1990).

### 1.4.4 Coping with psychosis

Numerous studies have been conducted focusing on coping with psychosis and have found that the majority of people with distressing unusual experiences have developed their own range of coping techniques (Knudson and Coyle, 1999). Consistently, behavioural strategies such as doing housework or seeking social contact, are more commonly reported than cognitive strategies, such as ignoring voices (e.g. Solano and Whitbourne, 2001). However, these studies generally focus on what individuals are doing to cope rather than the reasons why they are doing this (Knudson and Coyle, 1999) and, therefore, it could be that these studies have been looking at safety seeking behaviours rather than coping responses.

A review of coping strategies employed in relation to psychosis found that having a greater range of coping styles available was related to more effective coping (Phillips et al., 2009). In contrast, a study of coping in participants hearing voices found that those who were able to function most effectively actually had fewer coping strategies (Falloon and Talbot, 1981). Similarly, greater use of coping strategies has been found to be related to increased voice related distress (Singh et al., 2003). This could suggest that increased distress results in
more coping attempts or it could indicate that many coping attempts are unsuccessful or even counterproductive (Singh et al., 2003). In a study that compared people who were hearing voices who felt they could cope effectively with their experiences with those who felt they could not, it was found that there was no strategy used solely by one group (Romme et al., 1992). This provides support for the view that it is not the behaviour itself that determines efficacy as a coping response. Two categories of response were found to be used more frequently by those who felt they could cope than those who felt they could not. These were focusing attention more on positive voices and specifying boundaries for the voices (Romme et al., 1992). By contrast, distraction was used more frequently by those who felt they could not cope (Romme et al., 1992). This group was also more likely to be receiving psychiatric support (Romme et al., 1992). Although problem solving is often seen as an example of an effective coping strategy (e.g. Skinner et al., 2003), in one case it has been found to relate to increased voice related distress (Singh et al., 2003). A review of the literature confirmed that no single coping strategy has been identified as always helpful (Phillips et al., 2009). The same strategies have also been found to be used both in relation to pleasant and unpleasant voices (O’sullivan, 1994). This again highlights the importance of investigating appraisals as it is unclear why coping strategies would be needed in response to voices experienced as pleasant.

A study that has looked at primary and secondary appraisals in individuals scoring highly on measures of unusual beliefs or anhedonia found that these groups did not differ from a control group on the primary appraisal relating to presence of threat (Schuldberg et al., 1996). Instead, the difference lay in the secondary appraisal, with the unusual beliefs group being more confident and the anhedonic group less confident than controls that the situation could be changed (Schuldberg et al., 1996). This suggests that there could be differences in appraisals and, therefore, coping styles between individuals experiencing mainly positive compared to mainly negative symptoms.

Other research findings can be interpreted in the light of the Lazarus and Folkman (1984) model. For instance, it has been found that participants’ reporting higher levels of hope used more active coping strategies such as reappraisal and acting, and less avoidant
strategies such as ignoring and resigning (Lysaker et al., 2005a). Further, high levels of hope were associated with less positive symptoms (Lysaker et al., 2005a). It could be that hope relates to the secondary appraisal of confidence in ability to cope, with hope indicating that future stressors are appraised as manageable. As this research was cross sectional, causal relations cannot be assumed, however, it could be that higher hope is associated with improved confidence in coping ability which leads to choice of more effective coping strategies which in turn results in symptom reduction.

Comparisons of people experiencing psychosis with control groups reveal some differences in coping styles. One study found that those considered to be at high risk and those experiencing a first episode of schizophrenia, had similar response styles that differed from a control group (Lee et al., 2011). The clinical groups both used less problem-focused coping than controls and more tension-reduction, while levels of wishful thinking and seeking social support were similar (Lee et al., 2011). Further, problem-focused coping was found to correlate negatively with negative symptoms, depression and anxiety in both clinical groups (Lee et al., 2011). Although causal inferences are not possible, the authors conclude that this is a maladaptive pattern of coping that is already present in the prodromal stage of schizophrenia (Lee et al., 2011). Several other studies have also found that participants at high risk rely more on emotion-focused strategies, which are considered maladaptive, than adaptive, problem-focused strategies (e.g. Kommescher et al., 2016).

These findings are consistent with results obtained in samples of participants with established diagnoses of schizophrenia. In a series of studies conducted in Israel, it has been found that participants with a diagnosis of schizophrenia used more emotion-focused coping than controls and less task coping (Ritsner et al., 2006). No differences were observed in use of avoidance coping (Ritsner et al., 2006). Emotion-focused coping has been found to relate positively to levels of distress and negatively with quality of life (Ritsner et al., 2003). In contrast, task coping, and two elements of avoidance coping, distraction and social diversion, were found to be positively associated with quality of life, leading the authors to conclude that these are more adaptive coping styles (Ritsner et al., 2003). This conceptualisation of avoidance coping could be problematic as combining distraction and
social diversion makes results difficult to interpret as it is unknown which aspect is exerting the effect. As previously mentioned, distraction has been reported as an unhelpful coping strategy (Romme et al., 1992), whereas seeking social support has been found to improve outcome in first episode psychosis (Norman et al., 2005).

Pre-therapy use of adaptive coping strategies has been found to relate to greater improvements post-therapy (Premkumar et al., 2011). The specific coping responses associated with better treatment outcome were active coping, planning and accessing social support. Interestingly, these associations were with improvements in negative and general symptoms, rather than positive symptoms (Premkumar et al., 2011). This could be an important finding given the results discussed previously that the effect of CBT is generally restricted to positive, rather than negative symptom dimensions (e.g. Turner et al., 2014).

There is some evidence that teaching coping skills in therapy can improve symptoms and reduce anxiety (Tarrier et al., 1993). However, in contrast to the above, these benefits were limited to positive symptoms and did not extend to improvements in levels of depression or social withdrawal (Tarrier et al., 1993). It is argued that even small gains such as this are worthwhile due to increasing the client’s feelings of self-efficacy and sense that they have some control over, for example, a threatening voice (Turkington and Siddle, 2000). A possible problem could be that taught coping strategies could themselves become safety seeking behaviours if the individual begins to feel that the only reason they coped in their feared situation was because they were using the taught response (Thwaites and Freeston, 2005).

The concept of coping has, therefore, proved difficult to clearly define, understand and categorise (Roe et al., 2006). The use of different measures and different systems of categorising coping, precludes clear comparison across studies and even the same measures when factor analysed can produce different results (Skinner et al., 2003). The same problem discussed previously of effectively categorising coping strategies in general, also applies to coping strategies employed in relation to psychosis specifically, no clear consensus has been reached (Phillips et al., 2009). The distinction between effective coping and problematic safety seeking behaviours is not straightforward or easily determined. More
attention needs to be paid to the reasons why certain responses are chosen and the impact these appraisals have on distress and functioning (Farhall et al., 2007). Qualitatively it has been found that developing coping strategies is central to service users’ conceptualisation of their recovery (Wood et al., 2010) and the NICE guidelines recommend that CBT should support people to develop effective coping strategies (NICE, 2014), demonstrating the importance of improving understanding in this area.

Due to the difficulties highlighted with the conceptualisation of safety seeking behaviours and coping, throughout this thesis the term “response styles” or “responses” will be used to refer to any cognitive or behavioural response to psychosis where it is unclear whether safety seeking or coping is being described.

1.4.5 Metacognitive responses

Within a metacognitive framework for understanding distress, it is suggested that coping strategies are employed that are counterproductive and result in extended processing and heightened distress (Wells and Matthews, 1994a). Activation of the CAS may result in use of self-regulatory strategies such as worry, attention to threat or attempts at thought control (Wells and Matthews, 1994a). Strategy selection will be governed by metacognitive beliefs including both positive beliefs about the benefits of using the strategy and negative beliefs about the same strategy (Wells and Matthews, 1994a). In relation to the experience of psychosis an initial worrying thought, such as about hearing a threatening voice can be maintained due to positive beliefs about worry (e.g. “worrying about the voice helps me to prepare for the worst”). However, negative beliefs about worry (e.g. “I’ll drive myself crazy with worry”) can then intensify distress and contribute to feelings of threat (Hutton et al., 2014). These metacognitive beliefs about worry may lead to responses intended to try and control or suppress thoughts which backfire, heighten distress and prevent disconfirmation of metacognitive beliefs (Wells and Matthews, 1994a).

The effect of thought suppression has frequently been studied and consistently reported to be an unhelpful behavioural response to intrusive thoughts. One of the earliest studies of thought suppression found both an immediately unhelpful effect (initial enhancement) and
also a delayed or rebound effect (Wegner et al., 1987). A meta-analysis of the effects of thought suppression concluded that there was no evidence for initial enhancement, but they did find consistent evidence in support of the rebound effect (Abramowitz et al., 2001). In relation to voice hearing, a study in a non-clinical sample using auditory material designed to induce auditory illusions, also found no evidence of initial enhancement but found an increase at time two in both groups, leading them to conclude that suppression was unhelpful but not counterproductive (Rassin and Van Der Heiden, 2007). This suggests that attempts to suppress unwanted thoughts can be unhelpful and result in an increase in such thoughts as predicted by the S-REF model.

Differences have also been found in the types of thought control strategies used by participants with a diagnosis of schizophrenia as compared to a control group (Morrison and Wells, 2000). The group with a schizophrenia diagnosis used significantly more strategies based on worry and punishment and less distraction strategies than the control group (Morrison and Wells, 2000). This suggests that strategies involving extended processing are associated with difficulties such as psychosis. Distraction based strategies may serve to disrupt CAS activity.

Worry has been implicated in the maintenance of psychotic experiences (Freeman and Garety, 1999). Participants experiencing persecutory beliefs report both positive and negative beliefs about worry and meta-worry (Freeman and Garety, 1999). Meta-worry was also found to be related to distress associated with the unusual belief, while conviction and preoccupation were not. This suggests that the distress was associated with metacognitive beliefs about the ability to control thoughts rather than other aspects of the belief, such as level of conviction (Freeman and Garety, 1999). Additionally, meta-worry has been found to be associated with distress related to voice hearing and both positive and negative symptoms (Morrison and Wells, 2007). This, therefore, suggests that worry based strategies can heighten distress in relation to psychosis, as the S-REF model would predict (Morrison and Wells, 2007).

The ability to disrupt such patterns of extended processing may confer resilience to psychological difficulties (Wells and Matthews, 1994a).
1.5 Aims and hypotheses

The literature outlined above indicates that ways of responding have an important role in cognitive and metacognitive models of psychosis. It is suggested that responses are meaningfully related to appraisals and distress and may contribute to the maintenance of these factors. In this way, responses can be viewed as unhelpful safety seeking responses. It appears that responses can also be helpful, in the form of coping with distress. Understanding and changing responses has been found to be a promising treatment approach and so further research is now needed. One aim of this thesis is to try and determine whether certain responses can be considered helpful or unhelpful, both in terms of the ways in which they are associated with distress and with the experience of psychosis.

The aims of this project are, therefore, to further the understanding of cognitive and behavioural responses to the experience of psychosis. This may include responses to the unusual experiences themselves or responses to these experiences as mediated by distress and appraisals of threat. It is hoped to increase knowledge of the cognitive and behavioural strategies people experiencing psychosis are using, why they have chosen these and what the implications of these responses are. This will include the benefits people find in their responses as well as the disadvantages.

A further aim is to develop a measure of common responses to unusual experiences and to use this to investigate the relationship between these responses and other elements of cognitive and metacognitive models of psychosis to see if they relate to each other in the way that would be expected.

Finally, as much research conducted in this area to date is cross-sectional, another aim is to see what impact manipulating response styles has on the experience of psychosis and distress levels.

These studies are needed as there is currently some conceptual confusion surrounding the concepts of coping and safety seeking. Little research has focused specifically on safety seeking behaviours used in response to distressing psychosis. This gap in knowledge needs to be addressed as it is proposed that safety seeking behaviours play a significant
part in maintaining the distress often associated with psychosis, and could contribute to difficulties reaching a level where support is needed (Gaynor et al., 2013).

Although much research has looked at coping with psychosis, no clear consensus around definition, categorisation or efficacy has been reached. As vulnerability to stress could be a risk factor for developing psychosis (Myin-Germeys et al., 2001), and effective coping could provide some protection against the experience of stress (Holahan et al., 1996), it is important to improve this understanding as it could be important for prevention and treatment.

Therefore improving understanding of cognitive and behavioural responses to distressing psychosis could reduce suffering, contribute to therapeutic interventions and reduce burden on services.

More specifically, it is firstly aimed to systematically review the literature exploring the relationship between psychosis and safety seeking behaviours and to investigate the strength and direction of this relationship using meta-analytic methods.

Secondly, it is aimed to investigate how people respond to the experience of psychosis using in depth interviews and qualitative analysis.

A third aim is to develop and validate a self-report measure that incorporates both safety-seeking behaviours and coping responses specific to distressing psychotic experiences in a clinical population.

Fourthly, to investigate whether data relating to responses will fit within a cognitive and metacognitive framework of voice hearing.

The final aim is to investigate the effects of manipulating attentional avoidance and attentional focusing response styles in relation to voices in a clinical sample using ambiguous auditory stimuli.
Chapter 2: An exploration of the relationship between use of safety seeking behaviours and psychosis: a systematic review and meta-analysis

The following paper is under review for publication in Clinical Psychology and Psychotherapy
An exploration of the relationship between use of safety seeking behaviours and psychosis: a systematic review and meta-analysis.

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2.1 Abstract

Safety seeking behaviours are responses employed to protect against perceived threat. In relation to anxiety disorders, safety seeking behaviours have been implicated in both the formation and maintenance of distress. Several studies have highlighted similar findings in relation to psychosis; however, this literature has not yet been synthesised. This review is, therefore, being conducted in order to synthesise the literature on safety seeking in people with psychosis to increase the understanding of this relationship. A systematic search identified and included 43 studies comprising 2,592 participants, published between 1995 and 2015. The results indicated that people experiencing psychosis commonly respond to their experiences with behavioural and cognitive strategies intended to manage their difficulties. In relation to safety seeking, avoidance and resistance, there was a pattern that these responses are associated with increased distress and appraisals of threat. The results relating to engagement response styles showed the opposite pattern. Although many of the meta-analyses reported here show a clear pattern of association between behavioural responses and distress, the results reported within individual studies are mixed. This appears to be particularly true with the response style of distraction, with our analyses unable to clarify this relationship. It is possible that the mixed results could reflect the complexities in defining safety seeking and distinguishing it from coping in this population. The clinical implications of this are discussed. It appears from this study that there should be an interface between the safety seeking and coping literature that has been overlooked by previous research.

Keywords: safety seeking behaviours; coping; schizophrenia; psychosis
2.2 Introduction

2.2.1 Safety seeking behaviours and anxiety

The idea that interpretations and beliefs influence our emotional and behavioural responses is central to the cognitive model (Beck, 1963). For example, in panic disorder, an individual will feel anxious if physical sensations, such as palpitations, are appraised as threatening (Clark, 1986). As a result of these threat appraisals, the individual will then take action to protect themselves from this perceived threat (Salkovskis, 1991). This is known as safety seeking behaviour and is understandable in the context of strong conviction that harm is imminent (Salkovskis, 1991). In the case of panic, palpitations could be misinterpreted as a sign of a heart attack and safety could be sought from this by sitting or lying down (Salkovskis et al., 1996). Safety seeking responses have been associated with a range of other anxiety disorders including social phobia (Korte et al., 2015), health anxiety (Abramowitz and Moore, 2007), obsessive compulsive disorder (Deacon and Maack, 2008) and generalised anxiety disorder (Beesdo-Baum et al., 2012), as well as with difficulties such as insomnia (Harvey, 2002). Table 1 presents some examples of typical safety seeking responses associated with these anxiety problems. Salkovskis et al (1996) proposed three categories of safety seeking behaviours: avoidance of the feared situation, escape from it and behaviours carried out to cope whilst in the situation. Such safety seeking behaviour can contribute to the maintenance of anxiety as it may be believed that harm did not occur only because the safety seeking response was employed (Salkovskis, 1991). For example, in the case of someone who lies down to prevent a heart attack, this is interpreted as a “near miss”, that a heart attack was only prevented because they lay down. Anxiety in the situation is reduced; however, anxiety in the longer term is maintained as the belief that palpitations is a sign of imminent threat has not been disconfirmed (Salkovskis, 1991). Safety seeking responses may also have further unwanted effects. The likelihood of a feared outcome could be increased, for example avoidance of eye contact by someone who is socially anxious could lead to less positive interactions with others (McManus et al., 2008). Awareness of intrusions could also be increased, for example monitoring the body in health anxiety could lead to heightened awareness of normal bodily sensations (Olatunji et al., 2011).
Several studies have examined the role of safety behaviours in anxiety. In a study of social phobia, Wells et al (1996) showed that one-session of exposure coupled with decreasing safety behaviours produced greater reductions in anxiety and negative beliefs than one-session of exposure alone (Wells et al., 1996). In subsequent study anxiety and catastrophic misinterpretations were reduced in an agoraphobic group asked to drop their safety behaviours, suggesting that these behaviours are involved in maintaining anxiety as predicted (Salkovskis et al., 1999).

2.2.2 Safety seeking behaviours and psychosis

Cognitive behavioural theories of psychosis have been produced based on the model of anxiety described above. They propose that similar mechanisms underlie the experience of distressing psychosis, and therefore safety seeking behaviours have also been suggested as a maintaining factor here. For example, Morrison (1998) outlined a cognitive analysis of voice hearing that suggested that as normal physical sensations are misinterpreted in anxiety, it may also be the misinterpretation of voices as threatening that determines the emotional response to the experience. As a result of this perceived threat, safety seeking responses may then be used in the same manner as described above, which again may prevent disconfirmation of beliefs. For example, trying to control thoughts out of fear that voices want to take over the mind, may prevent disconfirmation of the threatening appraisal regarding loss of mental control (see Table 1). It is suggested that use of such safety seeking behaviours could also increase the incidence of experiences such as hearing voices. For example, in the same way as described above, focusing attention on the thoughts could increase awareness of intrusions (Morrison, 2001). Similarly, the cognitive model of psychosis proposed by Garety and colleagues also implicates safety behaviours in maintaining the cycle of unusual beliefs and distress (Garety et al., 2001). In this model, it is suggested that cognitive processes are disrupted, leading to intrusions into consciousness of experiences felt to be unintended and not internally generated (Garety et al., 2001). Certain biases in cognition, such as a jumping to conclusions reasoning style, result in these experiences being appraised as threatening and coming from an external source, which Garety and colleagues suggest is a key feature of psychosis. Emphasis is also placed on social environment and it is suggested that avoidance leading to social withdrawal could
reduce the likelihood of exposure to information that could help to normalise experiences (Garety et al., 2001).

Table 1: Examples of safety seeking behaviours related to different difficulties

<table>
<thead>
<tr>
<th>Difficulty</th>
<th>Trigger</th>
<th>Appraisal</th>
<th>Safety seeking response</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panic (Clark, 1986)</td>
<td>“I’m going to have a heart attack”</td>
<td>Lie down</td>
<td></td>
<td>Maintenance of distress due to missed opportunity to disprove threat appraisal as well as possibility of increasing likelihood of negative outcome or awareness of intrusions</td>
</tr>
<tr>
<td>Social anxiety (Korte, Unruh, Oglesby, &amp; Schmidt, 2015)</td>
<td>Normal intrusion in to awareness e.g. – physical sensation, thought, image, information from external source</td>
<td>“They’ll think I’m weird”</td>
<td>Avoid eye contact</td>
<td></td>
</tr>
<tr>
<td>Health anxiety (Abramowitz &amp; Moore, 2007)</td>
<td>“I’ve got a serious illness”</td>
<td>Check body for signs of illness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obsessive compulsive disorder (Deacon &amp; Maack, 2008)</td>
<td>“I’ve been contaminated”</td>
<td>Repeated hand washing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generalised anxiety disorder (Beesdo-Baum et al., 2012)</td>
<td>“Something bad is going to happen”</td>
<td>Reassurance seeking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insomnia (Harvey, 2002)</td>
<td>“If I don’t get enough sleep I can’t function”</td>
<td>Nap during the day</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voice hearing (Morrison, 1998)</td>
<td>“The voice will take over my mind”</td>
<td>Distract self from the voice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paranoia (Morrison, 2001)</td>
<td>“Someone is out to get me”</td>
<td>Hypervigilance for signs of danger</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Research has supported these cognitive models of psychosis, including their predictions about the role of safety-seeking behaviours. Birchwood and Chadwick (1997) have found that behavioural responses to voices were related not to the experience of hearing voices
per se, for example the volume of the voice, but rather to the beliefs about the voice, in particular its power and level of threat (Birchwood and Chadwick, 1997). Safety seeking behaviours have also been found to be commonly used in response to feelings of paranoia and greater use of safety seeking was found to be associated with higher levels of anxiety, as the cognitive model would predict (Freeman et al., 2001).

One distinction that could be made between anxiety disorders and the experience of psychosis is the level of conviction in the threat appraisal. Diagnostic criteria for anxiety disorders and phobias included that the feared outcome was recognised to be disproportionate or irrational, until recently, and in a large sample of psychiatric outpatients it was found that very few people did not meet this criteria (Zimmerman et al., 2010). This so called insight criterion is not considered to apply to psychosis, however, where beliefs considered delusional are held with extreme conviction. Thus, the stakes for seeking safety from threat may feel even higher for people experiencing beliefs of this nature.

### 2.2.3 Problems with definition

The definition of safety seeking behaviours as proposed by Salkovskis (1991) suggests that such responses have “the subjective effect of "saving" the person from the threat involved in anxious stimuli and situations, in the sense that the person comes to believe that their behaviour stands (and has stood) between them and a likely danger” (Salkovskis, 1991, p.16). This is, therefore, always considered an unhelpful response since it maintains anxiety. In contrast, coping is considered adaptive and intended to manage anxiety alone, rather than preventing a mistakenly perceived catastrophe.

There are problems with this definition, however, in that there may be situations where safety seeking responses are not counterproductive. For instance, it has been argued that dropping safety seeking behaviours (for example, remaining standing rather than lying down when experiencing palpitations and appraisals about having a heart attack), is not a necessary requirement for therapeutic efficacy and may reduce the likelihood of engagement in therapy for anxious clients who may feel overwhelmed by exposure (Milosevic and Radomsky, 2008). In a study of participants with snake phobia, it was found that anxiety reduced not only in an exposure only group but also in a group allowed to use
safety behaviours during the exposure session. Participants in both groups were able to approach the snake equally as closely in a post-treatment session without any safety gear and changes in cognitions were also found in both groups (Milosevic and Radomsky, 2008).

A more recent definition has been offered by Helbig-Lang and Petermann (2010) in their review of the effect of safety seeking responses in anxiety disorders. They provide three key points in their definition. Firstly, responses to anxiety can be both helpful and unhelpful. Secondly, where there is an actual threat, responses to anxiety are likely to be adaptive. Thirdly, safety seeking is unhelpful and can be differentiated from helpful coping strategies on the basis of both accuracy of threat appraisal and purpose. They argue safety seeking responses have the purpose of protecting against catastrophic consequences as opposed to being a habitual response to stress, giving the example of smoking.

This definition allows for a little more flexibility. For example, it allows for instances where a threat is present and so escape would be an adaptive response, such as leaving a burning building. However, a distinction is still made between safety seeking as maladaptive responses and coping as adaptive responses and it seems unlikely in reality to be this clear cut.

As a result of the conflict surrounding whether safety seeking responses should always be considered maladaptive or whether there are instances where they can be helpfully used in therapy (Rachman et al., 2008), Helbig-Lang and Petermann (2010) reviewed studies of exposure therapy to determine the impact of safety behaviour use. The results of the review are mixed. They report that most of the research they identified found negative effects of use of safety seeking on therapeutic progress. However, some results suggest that safety seeking responses could be helpful in the case of specific phobias. This finding could be related to the suggestion that, where there is an element of real threat, behavioural responses to anxiety could be adaptive. They also found distraction to be a helpful strategy at times. It is suggested that this could be because it is preventing engagement with cognitive safety seeking strategies, such as threat monitoring. It could be that use of safety seeking responses has an impact on cognitive and attentional resources and it is this that results in maintenance of anxiety as other information available cannot be processed (Sloan
and Telch, 2002). Similarly, previous research has found an equally detrimental effect of use of safety behaviours as compared to safety seeking responses being simply available but not actually used, suggesting that it is not only actual use of safety behaviours that could be problematic (Powers et al., 2004).

Defining safety seeking responses is, therefore, a complex issue and further complicated as it is likely to be person and context specific, meaning that the same response might be both helpful and unhelpful in different people, places and times. Efficacy could also depend on the accuracy of the threat appraisal or the likelihood that the threat really could occur. This is especially relevant to the experience of psychosis, where threat appraisals may be both inaccurate and strongly believed. This may be due to the fact that people with psychosis often have a history of experiencing real catastrophic events, such as abuse and neglect (Varese et al., 2012b). Some threats could be realistic, such as being hospitalised, and therefore, responses used to reduce anxiety in relation to this may be appropriate. This has implications for therapeutic approaches which emphasise the removal of safety seeking behaviours, as this could be detrimental to the client's wellbeing (Thwaites and Freeston, 2005).

### 2.2.4 Summary and aims

In relation to anxiety disorders there is a wealth of research literature indicating the significance of safety seeking behaviours in both the formation and maintenance of distress. Extensive trials of therapy have found that encouraging clients to drop their safety seeking responses results in the greatest treatment efficacy in terms of reduction of both catastrophic appraisals and distress. There are however, some instances where this is not the case and therefore, it seems that behaviours used in response to anxiety are not yet fully understood. Several studies have highlighted similar findings in relation to safety seeking behaviours and psychosis; however, this literature is yet to be synthesised. This review is, therefore, being conducted in order to identify and synthesise the available literature on safety seeking behaviours in relation to psychosis and associated distress in order to increase our understanding of these processes. If safety seeking contributes to the formation and/or
maintenance of psychosis, then advancing knowledge in this area could aid in the prevention and treatment of distressing psychosis.

The aim of the current study is to systematically review the literature exploring the relationship between psychosis and safety seeking behaviours. It will also be considered whether there is evidence to suggest that safety seeking behaviours are involved in vulnerability to psychotic experiences and their maintenance. A further aim is to investigate the strength and direction of this relationship using meta-analytic methods. Specifically, to evaluate the relationship between safety seeking responses and the following: positive symptoms, anxiety, depression, distress relating specifically to unusual experiences and lastly appraisals of threat. These outcomes were chosen due to the existing literature outlined above suggesting that responses may not be related to the positive symptoms themselves but rather the appraisals of these experiences and the associated distress (Birchwood and Chadwick, 1997; Freeman et al., 2001). The association between safety seeking and anxiety is well documented as described above but as depression is also commonly associated with psychosis (Birchwood, 2003), it was also decided to explore the relationship between depression and safety seeking responses.

2.3 Method

2.3.1 Search strategy
A systematic search of the literature was conducted using the databases Psychinfo, Embase and Medline. The searches were initially conducted between March and May 2014 and then updated in September 2015 and August 2016. The searches were limited to studies published in English, using human participants over the age of 16. No date restriction was used.

Search terms were selected based on the specific safety seeking behaviours considered in previous empirical work in anxiety disorders and psychosis and based on the three categories proposed by Salkovskis et al (1996), escape, avoidance and in-situation responses such as hypervigilance. Helbig-Lang and Petermann (2010) used the terms
avoidance, safety behaviour and safety seeking behaviour in their literature search. Due to the ambiguity surrounding the concept of safety seeking, an attempt was made here to broaden the scope of the search given there could be other specific responses that are relevant, such as distraction. Therefore, the terms used were as follows: "safety behav*" OR "safety seeking behav*" OR avoid* OR hypervigil* OR reassur* OR escap* OR distract* OR "thought suppress*" OR "thought control*" AND psychosis OR psychotic OR hallucinat* OR voic* OR "hearing voic*" OR delu* OR paranoi* OR schizo*.

Studies were included in the review if they used a measure of safety seeking as well as a measure of psychosis (positive symptoms or threat appraisals) or distress (anxiety, depression or distress relating specifically to unusual experiences) and looked at the relationship between these, conducted the study in a clinical sample of participants with schizophrenia spectrum diagnoses, participants were over the age of 16 and the study was published in English Language. Case studies were excluded as well as studies where the focus was on caregivers or at risk samples.

For inclusion in the meta-analysis, there also needed to be statistical analysis between safety seeking behaviours and psychosis or distress. Studies were excluded from analysis where there was not sufficient data to allow calculation of effect sizes either in the paper or upon approaching authors for additional data.

As can be seen in Figure 1, the initial search of the three databases identified 3,012 articles. These were all screened by title and abstract initially to exclude any clearly not eligible and then the remaining articles were screened using the full text. As an additional search, forward and backward tracking was also conducted for the key papers identified for inclusion (12 papers using the Safety Behaviour Questionnaire or other similar interview methodology). Backward tracking was conducted by checking the papers listed in the reference lists of these papers and forward tracking was conducted using Google scholar to check for later research that had cited these papers. This resulted in a further 454 papers being checked for inclusion. Finally, an additional 841 papers were identified and checked following the updated searches in September 2015 and August 2016.
Figure 1: Flow chart demonstrating study selection
2.3.2 Data extraction, quality assessment and analysis

Data was extracted from each study relating to the design, setting, sample size, sample characteristics, outcome measures used and a summary of the results.

A quality assessment of each study was made using the Effective Public Health Practice Project Tool (EPHPP; Thomas, 2003). This assessment was conducted by the first author and discussed with the primary supervisor (AM).

For the meta-analysis, outcomes were extracted that related to analysis between data on behavioural responses and positive symptoms (e.g. measured by the PANSS), threat appraisals (e.g. malevolence measured by the BAVQ), symptom related distress (e.g. measured by the PSYRATS), anxiety (e.g. measured by the Beck Anxiety Inventory) and depression (e.g. measured by the Beck Depression Inventory). As the majority of the studies included had a cross sectional design, all analyses involved calculating an overall correlational effect size (r) with a 95% confidence interval and p values to indicate significance of the result. Random effects models are reported as it is expected that the studies will differ from each other due to being conducted by different research teams in different settings with different participants. Use of random effects also allows for generalisations to be made beyond the studies included here (Field and Gillett, 2010). Heterogeneity was examined using the Q test and $I^2$ statistic to check for reliability in effect sizes across studies. To determine if any study was heavily influencing the meta-analysis, a ‘one study removed’ analysis was also conducted. Finally, funnel plots were inspected to check for publication bias and Egger’s test for funnel plot asymmetry was conducted (Egger et al., 1997). The analysis was conducted using Comprehensive Meta-Analysis (CMA) version 3.

2.4 Results

2.4.1 Overview of included studies

Using the search strategy outlined above resulted in 43 studies being identified for inclusion in this review. These studies are summarised in Table 2. The majority of the studies utilised a cross sectional design and were conducted in the UK (N = 25). The sample sizes ranged
from 11 to 237 with a total sample size of 2,592. Studies were published between 1995 and 2015.

The identified papers used several different measures to assess levels of safety seeking.

The Safety Behaviour Questionnaire (SBQ) was developed by Freeman and colleagues for use in their research relating to persecutory beliefs (Freeman et al., 2001). This is an interview based measure that asks participants what action they have taken to prevent a feared outcome. Responses are classified into avoidance behaviours, in situation safety behaviours, escape, compliance, help-seeking, aggression and responses classed as delusional. Participants are also asked to rate the effectiveness of their responses and how much control they have over the situation. A similar interview technique was used by Nothard et al (2008), they again asked participants about their feared outcomes, beliefs in relation to this and behavioural responses (Nothard et al., 2008). A final interview measure was used in one study to assess safety seeking specifically in response to visual experiences (Dudley et al., 2012).

The Davos Assessment of Cognitive Biases Scale (DACOBS) is a 42 item self-report measure to assess cognitive biases in psychosis (van der Gaag et al., 2013). It has seven subscales but the two of interest to this topic are the safety behaviours scale and the attention to threat bias scale. Both subscales have 6 items and participants are asked to answer on a 7 point scale from strongly disagree (1) to strongly agree (7).

The Ways of Coping Questionnaire (WCQ) was designed by Folkman and Lazarus (1988) and is a self-report measure that asks participants to think of a stressful situation they have experienced over the past week and rate how much they have used each of 66 responses (Folkman and Lazarus, 1988). The original scoring system used eight subscales with the one of relevance here being escape-avoidance. Some of the papers included in this review make use of an alternative scoring system that consists of six scales. Two of these are considered avoidant, namely ignoring and resigning.

The Coping Inventory for Stressful Situations (CISS) is a 48 item self-report measure similar to the WCQ in that participants are asked to rate how much they use each response when
stressed (Endler and Parker, 1990). Three subscales of coping are measured: task-oriented, emotion-oriented and avoidance-oriented. Some of the studies included here also break the avoidance subscale down in to two further subscales of distraction and social diversion.

The COPE (Carver et al., 1989) and brief COPE (Carver, 1997) again asks participants to rate how often they have been using certain responses when under stress using a four point Likert scale. The COPE consists of 60 items while the brief COPE has been reduced to 28 items. The COPE consists of fifteen subscales. The scales that are relevant here are denial and behavioural disengagement which are considered avoidant strategies and mental disengagement as this can be considered a measure of distraction. The subscales of the brief COPE are similar and again include denial and behavioural disengagement but in this measure mental disengagement is instead labelled as self-distraction.

The Beliefs about Voices Questionnaire (BAVQ) consists of 30 items designed to assess the presence of malevolence, benevolence, omnipotence, resistance and engagement in relation to voices (Chadwick and Birchwood, 1995). Participants simply answer yes or no to each item. A revised version of the BAVQ was developed later (BAVQ-R) and is a 35 item self-report measure with three sections (Chadwick et al., 2000). These are beliefs about voices (malevolence, benevolence and omnipotence), emotional reactions and behavioural reactions (resistance and engagement). This time participants answer using a four point Likert scale, ranging from disagree to strongly agree. Participants are asked to answer in relation to the voice they consider dominant if more than one voice is present.

The Thought Control Questionnaire (TCQ) is intended to measure the strategies that are used as an attempt to control unpleasant thoughts (Wells and Davies, 1994). It is a self-report measure consisting of 30 items that are responded to on a four point scale from never to almost always. It has five subscales with the one of relevance here being distraction.

The Behavioural Activation for Depression Scale (Kanter et al., 2007) has a subscale measuring avoidance using eight items. These are rated on a seven point scale from not at all to completely. This measure includes questions about avoidant cognitive strategies as well as behavioural strategies.
The Instrument for Assessment of Coping Behaviour (Thurm and Haefner, 1987) was used here in one study and has a subscale relating to avoidance as a way of coping with stress caused by voice hearing.

Experience Sampling Method (ESM) is used in one study (Hartley et al., 2015). Participants were prompted to fill in questionnaires ten times each day over a six day period. Items related to experience of auditory hallucinations and persecutory beliefs as well as distress associated with these and attempts at thought control. Participants were asked to respond on a seven point scale from not at all to very much.

Visual scan path measurement is employed in two studies (Freeman et al., 2000; Phillips et al., 2000). This involves measuring participants eye movements to determine where they are looking and for how long when viewing various images. This methodology has been included here as a measure of hypervigilance to threat cues.

Four studies do not use a specific measure of response styles but embed questions about behavioural responses or coping in to symptom interviews or provide participants with a list of strategies to state whether or not they have used each strategy.

As the SBQ and the DACOBS are the only measures identified to specifically assess the use of safety seeking behaviours in psychosis, studies using these measures will first be considered in detail as well as two other studies that have employed an interview strategy similar to the SBQ (N = 12). Specific types of safety seeking behaviours that have been measured in these studies will then be considered in turn. These are avoidance (N = 16), resistance and engagement (N = 12), distraction (N = 8), hypervigilance (N = 4) and thought control (N = 1). Some studies contribute to more than one section, as outlined in the Table 2.
Table 2: Summary of the included studies

<table>
<thead>
<tr>
<th>Response Measured</th>
<th>Summary of results</th>
<th>Outcome measure – safety seeking behaviour</th>
<th>Outcome measure – psychosis / distress</th>
<th>Sample characteristics</th>
<th>Sample size</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoidance</td>
<td>No significant difference in use of avoidance focused coping between FEP and controls. No significant association between avoidance and perceived stress in either group.</td>
<td>CISS</td>
<td>BPRS, HAMA, HAMD</td>
<td>FEP</td>
<td>34</td>
<td>Australia</td>
</tr>
<tr>
<td>Distraction</td>
<td>Resistance and engagement</td>
<td>BAVQ</td>
<td>BAVQ</td>
<td>Voice-hearers</td>
<td>35</td>
<td>UK</td>
</tr>
<tr>
<td>Resistance and engagement</td>
<td>Malevolent voices were more likely to be resisted and led to negative emotions.</td>
<td>BAVQ</td>
<td>BAVQ</td>
<td>Voice-hearers</td>
<td>62</td>
<td>UK</td>
</tr>
<tr>
<td>Resistance and engagement</td>
<td>Malevolent voices were resisted</td>
<td>BAVQ</td>
<td>BAVQ, BDI</td>
<td>Voice-hearers</td>
<td>125</td>
<td>UK</td>
</tr>
<tr>
<td>Resistance and engagement</td>
<td>Malevolent voices were resisted</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Study

- Allott 2015
- Beck-Sander 1997
- Birchwood 1997
- Birchwood 2004
<table>
<thead>
<tr>
<th>Response Measured</th>
<th>Summary of results</th>
<th>Outcome measure – safety seeking behaviour</th>
<th>Outcome measure – psychosis / distress</th>
<th>Sample characteristics</th>
<th>Sample size</th>
<th>Country</th>
<th>Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety behaviours</td>
<td>Avoidance associated with belief related distress</td>
<td>Avoidance was found to be a predictor of distress</td>
<td>Distraction</td>
<td>No association found between distraction and distress of positive symptoms</td>
<td>Resistance and engagement not reported</td>
<td>SBQ</td>
<td>Birchwood 2005</td>
</tr>
<tr>
<td>Avoidance</td>
<td></td>
<td>Cognitive behavioural responses</td>
<td>TCQ</td>
<td></td>
<td></td>
<td>CDSS, DoT</td>
<td>Brett 2014</td>
</tr>
<tr>
<td>Distraction</td>
<td>No association found between distraction and distress</td>
<td></td>
<td>BAVQ, DASS-21, PANSS</td>
<td>Voice-hearers</td>
<td>Voice-hearers</td>
<td>AANEX</td>
<td>Brockman 2014</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Voice-hearers</td>
<td>BAVQ, DoT</td>
<td>Brunet 2012</td>
</tr>
</tbody>
</table>

**Sample characteristics:**
- FEP
- Psychosis
- At risk
- Undiagnosed
- Voice-hearers
- Voice-hearers

**Sample size:**
- 26
- 35
- 20
- 36
- 40
- 50

**Country:**
- UK
- UK
- Australia
- UK
<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Sample size</th>
<th>Sample characteristics</th>
<th>Outcome measure – psychosis / distress</th>
<th>Outcome measure – safety seeking behaviour</th>
<th>Summary of results</th>
<th>Response Measured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chadwick 1995</td>
<td>UK</td>
<td>60</td>
<td>Voice-hearers</td>
<td>BAVQ</td>
<td>BAVQ</td>
<td>Malevolent voices were resisted</td>
<td>Resistance and engagement</td>
</tr>
<tr>
<td>Chadwick 2000</td>
<td>UK</td>
<td>71</td>
<td>Voice-hearers</td>
<td>BAVQ-R, HADS</td>
<td>BAVQ-R</td>
<td>Malevolent voices were resisted. Distress and resistance positively related whereas engagement and distress negatively related</td>
<td>Resistance and engagement</td>
</tr>
<tr>
<td>Chaix 2014</td>
<td>Switzerland</td>
<td>28</td>
<td>Voice-hearers</td>
<td>BAVQ, PSYRATS</td>
<td>BAVQ, SBQ</td>
<td>96% of participants used safety behaviours. Safety behaviours associated with voice-hearing. Resistance and engagement not reported</td>
<td>Safety behaviours</td>
</tr>
<tr>
<td>Cooke 2007</td>
<td>UK</td>
<td>65</td>
<td>Schizophrenia spectrum</td>
<td>BAI, BDI</td>
<td>The COPE</td>
<td>Behavioural disengagement associated with depression and anxiety</td>
<td>Avoidance</td>
</tr>
<tr>
<td>Study</td>
<td>Country</td>
<td>Sample size</td>
<td>Sample characteristics</td>
<td>Outcome measure – psychosis / distress</td>
<td>Outcome measure – safety seeking behaviour</td>
<td>Summary of results</td>
<td>Response Measured</td>
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<tr>
<td>Depp 2011</td>
<td>USA</td>
<td>73</td>
<td>Schizophrenia spectrum</td>
<td>CDSS, PANSS</td>
<td>Behavioural activation and avoidance</td>
<td>Avoidance associated with positive symptoms</td>
<td>Avoidance</td>
</tr>
<tr>
<td>Dudley 2012</td>
<td>UK</td>
<td>15</td>
<td>Visual hallucinations</td>
<td>North East visual hallucinations interview</td>
<td>The appraisals and reactions to visual hallucinations interview</td>
<td>Participants had a strong conviction that their feared outcome would happen if they didn’t use safety behaviours</td>
<td>Safety behaviours</td>
</tr>
<tr>
<td>El Sheshtawy 2011</td>
<td>Saudi Arabia</td>
<td>70</td>
<td>Schizophrenia</td>
<td>SAPS</td>
<td>Brief COPE</td>
<td>Avoidance and distraction were not related to positive symptoms</td>
<td>Avoidance</td>
</tr>
<tr>
<td>Favrod 2004</td>
<td>Switzerland / France</td>
<td>29</td>
<td>Voice-hearers</td>
<td>BAVQ</td>
<td>BAVQ</td>
<td>Malevolent voices were resisted and not engaged</td>
<td>Resistance and engagement</td>
</tr>
<tr>
<td>Study</td>
<td>Country</td>
<td>Sample size</td>
<td>Sample characteristics</td>
<td>Outcome measure – psychosis / distress</td>
<td>Outcome measure – safety seeking behaviour</td>
<td>Summary of results</td>
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<tr>
<td>Freeman 1999</td>
<td>UK</td>
<td>15</td>
<td>Persecutory beliefs</td>
<td>BAI, BDI, BPRS, STAI</td>
<td>TCQ</td>
<td>No difference between the two groups on use of distraction. Distraction not related to meta-worry.</td>
<td></td>
</tr>
<tr>
<td>Freeman 2000</td>
<td>UK</td>
<td>14</td>
<td>GAD</td>
<td>Visual scan path task</td>
<td>BAI, BDI, SAQ, STAI</td>
<td>Persecutory group looked at fewer areas of potential threat pictures and had lower repeatability scores.</td>
<td></td>
</tr>
<tr>
<td>Freeman 2001</td>
<td>UK</td>
<td>25</td>
<td>Non-clinical control</td>
<td>SBQ</td>
<td>Total SBQ scores and avoidance associated with anxiety.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freeman 2007</td>
<td>UK</td>
<td>100</td>
<td>Persecutory beliefs</td>
<td>Total SBQ related to anxiety and depression. Avoidance related to anxiety but not delusional distress.</td>
<td></td>
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</tr>
</tbody>
</table>

**Response Measured**
- Distraction
- Hypervigilance
- Safety behaviours
- Avoidance

**Sample characteristics**
- Persecutory beliefs
- GAD

**Outcome measure – psychosis / distress**
- BAI, BDI, BPRS, STAI
- BAI, BDI, SAQ, STAI
- BAI, BDI, DoT
- Total SBQ related to anxiety and depression. Avoidance related to anxiety but not delusional distress.
<table>
<thead>
<tr>
<th>Study</th>
<th>Country</th>
<th>Sample size</th>
<th>Sample characteristics</th>
<th>Outcome measure – psychosis / distress</th>
<th>Outcome measure – safety seeking behaviour</th>
<th>Summary of results</th>
<th>Response Measured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gaynor 2013</td>
<td>UK</td>
<td>28</td>
<td>Impairment group</td>
<td>AANEX interview, BAI, BDI</td>
<td>SBQ</td>
<td>Frequency of safety behaviours associated with threat appraisals and distress</td>
<td>Safety behaviours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>39</td>
<td>Persistence group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hacker 2008</td>
<td>UK</td>
<td>30</td>
<td>Voice-hearers</td>
<td>BAVQ, HADS, PSYRATS</td>
<td>BAVQ, SBQ</td>
<td>Total SBQ related to voice related distress. Resistance and engagement not reported.</td>
<td>Safety behaviours</td>
</tr>
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<tr>
<td>Hartley 2015</td>
<td>UK</td>
<td>32</td>
<td>Schizophrenia spectrum</td>
<td>ESM – Experience of voices and beliefs and associated distress, PANSS, PSYRATS</td>
<td>ESM – thought control</td>
<td>Thought control associated with both the severity and distress of voices and persecutory beliefs</td>
<td>Thought control</td>
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<td></td>
<td></td>
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<tr>
<td>Hayashi 2007</td>
<td>Japan</td>
<td>144</td>
<td>Schizophrenia spectrum</td>
<td>MASAH, PANSS</td>
<td>List of coping strategies</td>
<td>Distraction associated with reduced unusual beliefs</td>
<td>Distraction</td>
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<td>Study</td>
<td>Sample characteristics</td>
<td>Sample size</td>
<td>Country</td>
<td>Outcome measure - psychosis / distress</td>
<td>Outcome measure - safety seeking behaviour</td>
<td>Summary of results</td>
<td>Response measured</td>
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<tr>
<td>Lysaker 2005</td>
<td>Schizophrenia spectrum</td>
<td>42</td>
<td>USA</td>
<td>WCQ</td>
<td>Brief COPE</td>
<td>Malevolent voices resisted, distraction related negatively to depression</td>
<td>Avoidance</td>
</tr>
<tr>
<td>MacAulay 2013</td>
<td>Schizophrenia</td>
<td>31</td>
<td>USA</td>
<td>PANSS, STAI</td>
<td>BPR, COPE</td>
<td>The safety behaviours corresponded to the participants beliefs about the experience of voice-hearing</td>
<td>Avoidance</td>
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**Sample size**
- 42
- 31
- 89
- 26
- 50
- 12

**Country**
- USA
- USA
- UK
- UK

**Outcome measure - psychosis / distress**
- WCQ
- Brief COPE
- PANSS, STAI
- PANSS
- BPR, COPE
- BAVQ, TCQ
- BAI, BAVQ, BDI, PSYRATS
- IVI, PSYRATS

**Outcome measure - safety seeking behaviour**
- Avoidance
- Avoidance
- Resistance and engagement

**Response measured**
- Avoidance
- Avoidance
- Resistance and engagement

**Summary of results**
- Ignoring and resigning associated with more positive symptoms and anxiety
- Avoidant coping associated with negative affect
- Malevolent voices resisted, distraction related negatively to depression
- The safety behaviours corresponded to the participants beliefs about the experience of voice-hearing
<table>
<thead>
<tr>
<th>Response Measured</th>
<th>Summary of results</th>
<th>Outcome measure - safety seeking behaviour</th>
<th>Outcome measure - psychosis / distress</th>
<th>Sample characteristics</th>
<th>Sample size</th>
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<td>Malevolent voices were resisted. Resistance related to depression, anxiety, voice-related distress and PANSS hallucinations scale.</td>
<td>Visual scan path task</td>
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<td>The group with persecutory beliefs viewed threatening foreground areas less and non-threatening foreground areas more than the other two groups.</td>
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<td>Sample characteristics</td>
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<td>Sample size</td>
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<td>Participants who were depressed used more safety behaviours. Resistance and engagement.</td>
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<td>Distraction avoidance</td>
<td>The clinical group scored higher on use of distraction avoidance response style</td>
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Abbreviations: FEP: First episode psychosis; GAD: Generalised anxiety disorder; Safety seeking behaviour measures: BAVQ: Beliefs about voices questionnaire; CISS: Coping inventory for stressful situations; COPE: Coping Inventory; DACOBS: Davos assessment of cognitive biases scale; ESM: Experience sampling method; SBQ: Safety behaviour questionnaire; VAS: Visual analogue scale; WCQ: Ways of coping questionnaire. Psychosis / distress measures: AANEX: Appraisals of anomalous experiences interview; BAI: Beck anxiety inventory; BDI: Beck depression inventory; BPRS: Brief psychiatric rating scale; CDSS: Calgary depression scale; GPTS: Green paranoid thoughts scale; HADS: Hospital anxiety and depression scale; HAMA: Hamilton anxiety rating scale; HAMD: Hamilton depression rating scale; IVI: Interpretation of voices inventory; MATAS: Matsuzawa assessment schedule for auditory hallucinations; PANAS: Positive and negative affect schedule; PANSS: Positive and negative syndrome scale; PS: Perceived stress scale; S1-S1: State trait anxiety inventory; STAI: State trait anxiety inventory.
2.4.2 Safety seeking behaviours

2.4.2.1 Prevalence of safety seeking behaviours in psychosis

Studies that have used the SBQ as well as other interview methodology have reported that the majority of participants use safety seeking behaviours. The totals reported range from 82% of participants (Gaynor et al., 2013) to 100% (Freeman et al., 2001; Nothard et al., 2008) and include samples of participants with persecutory delusions (Freeman et al., 2001), auditory (Hacker et al., 2008) and visual hallucinations (Dudley et al., 2012). It has been consistently reported that avoidance is the most commonly used strategy followed by in-situation safety behaviours (Chaix et al., 2014; Freeman et al., 2001; Freeman et al., 2007; Hacker et al., 2008). This is true for samples of participants experiencing persecutory delusions (Freeman et al., 2001; Freeman et al., 2007) as well as for those hearing voices (Chaix et al., 2014; Hacker et al., 2008). However, beyond this the two samples do appear to differ in choice of safety seeking behaviour. The two papers by Freeman et al (2001, 2007) show the same pattern of responses in their samples of participants with persecutory beliefs. After avoidance and in situation behaviours, escape is the most common followed by help seeking, compliance and aggression, with behaviours considered to be delusional in nature reported by only a small number of participants. The two samples of voice hearers on the other hand reported a greater frequency of aggression, help seeking and compliance responses. Mixed results have been reported for the escape category of safety behaviour; with Hacker et al (2008) reporting a lower percentage (23.3%) than that reported in the Freeman et al (2001, 2007) papers (36% and 35%) but Chaix et al (2014) report a higher percentage (64%). These studies have also found that participants feel that their choice of safety seeking behaviour is effective (Freeman et al., 2001; Hacker et al., 2008) and necessary (Dudley et al., 2012) in reducing threat.

In comparison to non-clinical samples, It has been found that the safety behaviour score as measured by the DACOBS was significantly higher in a FEP group (Veling et al., 2014). This is similar to the finding by Gaynor et al (2013) who compared a sample of participants with schizophrenia spectrum diagnoses (“impairment” group) with a sample of participants with experience of psychosis who had never received a diagnosis or support from mental
health services (“persistence” group). Using the SBQ they also found that their group with a diagnosis scored significantly higher than the group without such a diagnosis.

**2.4.2.2 Associations between safety seeking behaviours and positive symptoms**

Conflicting findings are reported in relation to the association between safety seeking and positive symptoms such as hearing voices and holding unusual beliefs. With regards to voices, Hacker et al (2008) report significant associations with the frequency and degree of negative content as well as the volume of the voice. These associations are not found by Chaix et al (2014) who instead report significant associations with frequency of voices, beliefs about the origin of the voice and the overall score on the PSYRATS hallucination scale. Interestingly, a significant association is not found with the overall PSYRATS beliefs scale. Further, non-significant negative associations were found in the “impairment” group of participants described above (Gaynor et al., 2013) and in a FEP sample (Upthegrove et al., 2014).

Four studies that measured overall level of positive symptoms could be included in the meta-analysis. The result of the summary effect size for the relationship between safety behaviours and positive symptoms was found to be not significant with a summary effect of \( r = 0.179 \) (95% CI -0.205 – 0.514, \( p = 0.362 \)). High heterogeneity was observed amongst these studies (\( Q = 15.257, df = 3, p = 0.002, I^2 = 80.34\% \)). Egger’s test was applied to assess publication bias and was found to be non-significant (\( p = 0.27 \)), which indicated that the results were not influenced by publication bias. One study removed analysis showed none of the studies were exerting undue influence over the result.

**2.4.2.3 Associations between safety seeking behaviours and anxiety**

The relationship between safety seeking and anxiety was not investigated as much as might have been expected in these papers and where it has been studied, the results are mixed. A positive association was reported in two studies examining participants with persecutory beliefs (Freeman et al., 2001; Freeman et al., 2007) and approached significance in a sample of voice hearers (Hacker et al., 2008). No association was found in the “impairment” group of participants (Gaynor et al., 2013). Data from these four studies was combined for the meta-analysis.
The results of the summary effect size for the relationship between safety seeking and anxiety is illustrated in Figure 2 (A). The analysis showed a significant association with a summary effect of $r = 0.274$ (95% CI 0.126 – 0.410, $p < 0.000$). This is approaching a medium effect size based on Cohen’s (1988) criteria. No heterogeneity was observed amongst these studies ($Q = 1.116, \text{df} = 3, p = 0.773, \hat{\tau^2} = 0.000$). Egger’s test was applied to assess publication bias and was found to be non-significant ($p = 0.42$), which indicated that the results were not influenced by publication bias. In support of this, no evidence of funnel plot asymmetry was observed. One study removed analysis was conducted and suggested that none of the studies exerted undue influence over the result.

### 2.4.2.4 Associations between safety seeking behaviours and depression

The findings in relation to safety seeking behaviours and depression are also mixed. Three papers report no significant association (Freeman et al., 2001; Gaynor et al., 2013; Hacker et al., 2008) and in the case of one of these papers, the trend was in a negative direction (Hacker et al., 2008). The later paper by Freeman et al (2007) did find a significant positive relationship in their larger sample size so it may be that this result is more robust than the earlier non-significant finding. Upthegrove et al (2014) found that participants who were depressed as defined by the CDSS used significantly more safety seeking behaviours than those who were not depressed. Finally, in a first episode sample there are preliminary findings that depression is associated with greater self-reported ability to control and escape from threat (Birchwood et al., 2005).

Five papers were available for inclusion in the meta-analysis. The results of the summary effect size for the relationship between safety seeking and depression is illustrated in Figure 2 (B). The analysis showed a significant association with a summary effect of $r = 0.201$ (95% CI 0.032 – 0.359, $p = 0.020$). This is a small effect size based on Cohen’s (1988) criteria. Low heterogeneity was observed amongst these studies ($Q = 6.280, \text{df} = 4, p = 0.179, \hat{\tau^2} = 36.31\%$). Egger’s test was applied to assess publication bias and was found to be non-significant ($p = 0.18$), which indicated that the results were not influenced by publication bias. One study removed analysis showed that removing any of the studies from the analysis would result in the association no longer being significant. This was true for all
studies apart from Hacker et al. (2008), removing this study did not unduly influence the result.

2.4.2.5 Associations between safety seeking behaviours and symptom related distress

An association between safety seeking and symptom related distress has been relatively consistently reported in this set of papers. One study found that all those participants who reported distress in relation to their experiences also used safety seeking responses (Dudley et al., 2012). Two studies reported that distress was not associated with how effective safety seeking behaviours are reported to be (Brunet et al., 2012; Freeman et al., 2001).

Six studies report on the quantitative association between safety seeking responses and distress related to unusual experiences. Four of these report significant associations (Freeman et al., 2007; Gaynor et al., 2013; Hacker et al., 2008; Upthegrove et al., 2014) and two non-significant (Chaix et al., 2014; Freeman et al., 2001). These studies were combined for the meta-analysis.

The results of the summary effect size for the relationship between safety seeking and symptom related distress is illustrated in Figure 2 (C). The analysis showed a significant association with a summary effect of $r = 0.360$ (95% CI 0.213 – 0.491, $p < 0.000$). This is a medium effect size based on Cohen’s (1988) criteria. Low heterogeneity was observed amongst these studies ($Q = 7.677$, df = 5, $p = 0.175$, $I^2 = 34.87\%$). Egger’s test was applied to assess publication bias and was found to be non-significant ($p = 0.27$), which indicated that the results were not influenced by publication bias. One study removed analysis was conducted and it was found that none of the studies had an undue influence over the results of the analysis.

2.4.2.6 Association between safety seeking behaviours and threat appraisals

Several studies have reported an association between the appraisals made about unusual experiences and safety seeking behaviours, suggesting that these are meaningfully related as would be predicted by a cognitive model of psychosis. Two of these studies provide data from exploratory interviews and found similar results in a sample of voice hearers (Nothard et al., 2008) and people experiencing visual hallucinations (Dudley et al., 2012). One study
reported a quantitative link between safety seeking and threat appraisals (Gaynor et al., 2013). Interestingly, one study has reported a significant association (Hacker et al., 2008) and one a non-significant association (Chaix et al., 2014) between safety seeking and voice malevolence.

In a sample of participants with schizophrenia spectrum diagnoses, the SBQ was found to be associated with biases for attention to threat but the DACOBS subscale relating to safety behaviours did not relate to paranoid thoughts (van der Gaag et al., 2013). In contrast to this in another study using the DACOBS, it was found that the safety behaviour scale did correlate with feelings of paranoia in a virtual reality scenario in a sample of participants with FEP (Veling et al., 2014).

Six studies could be included in the meta-analysis. The result of the summary effect size for the relationship between safety seeking and threat beliefs is illustrated in Figure 2 (D). The analysis showed a significant association with a summary effect of $r = 0.411$ (95% CI 0.258 – 0.543, $p < 0.000$). This is a medium effect size based on Cohen’s (1988) criteria. Low heterogeneity was observed amongst these studies ($Q = 7.514$, $df = 5$, $p = 0.185$, $I^2 = 33.46\%$). Egger’s test was applied to assess publication bias and was found to be significant ($p = 0.01$), which indicated that the results were influenced by publication bias. Therefore trim and fill analysis was conducted. This resulted in a lower summary effect size of $r = 0.288$ (95% CI 0.104 – 0.453). One study removed analysis indicated that none of the studies exerted undue influence over the analysis.

A further important finding from these studies is that the relationships reported above between safety seeking behaviours and anxiety have been found to be mediated by threat appraisals (Gaynor et al., 2013). Further, threat appraisals were the only significant predictor and so could be differentiated from the effect of anxiety (Gaynor et al, 2013). The same was not true in relation to depression, suggesting the relationship between safety seeking and depression is of a slightly different nature.

Finally, when comparing the “impairment” and “persistence” groups described earlier (Gaynor et al., 2013), it was found that these two groups did not differ in terms of past or present experience of psychosis, however as previously reported, the group with a diagnosis
reported using significantly more safety seeking responses. The other factors that the
groups differed on were distress and threat appraisals, with the clinical group scoring higher
on both.

<table>
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<th>Upper limit</th>
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<td></td>
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<td>0.258</td>
<td>0.543</td>
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</tbody>
</table>

Figure 2: Forest plot for the associations between safety seeking behaviours and A) anxiety, B) depression, C) symptom related distress and D) threat appraisals
2.4.3 Avoidance

2.4.3.1 Prevalence of avoidance in psychosis

As discussed above, avoidance has been the most commonly reported safety seeking response in the studies using the SBQ. The two Freeman et al papers finding that avoidance was reported by 92% of participants in the first study (Freeman et al., 2001) and 78% in the second (Freeman et al., 2007). No differences have been reported between clinical and nonclinical groups on use of avoidance (Allott et al., 2015; Ritsner et al., 2006), or within a group of participants at exacerbation and stabilisation phases (Strous et al., 2005). In contrast, one study found a schizophrenia group used significantly more avoidant coping than a control group (MacAulay and Cohen, 2013).

2.4.3.2 Associations between avoidance and positive symptoms

In terms of the association between avoidance and positive symptoms, two studies report non-significant negative associations (Ritsner et al., 2003; Yanos et al., 2008) and two non-significant positive associations (Allott et al., 2015; Birchwood et al., 2005). In contrast, a further study found a significant positive correlation (Depp et al., 2011). In a comparison of negative symptoms and positive symptoms, it was found that avoidance was used significantly more in response to positive symptoms (Rollins et al., 2010). Finally, when looking at different avoidant response styles, no relationship has been found between positive symptoms and the avoidance subscales of the COPE, behavioural disengagement and denial (El Sheshtawy, 2011) or resigning as measured by the WCQ (Lysaker et al., 2005b). In contrast, ignoring has been found to relate significantly to positive symptoms (Lysaker et al., 2005b).

Six studies were included in the meta-analysis and one of these was included twice due to measuring two different types of avoidance (Lysaker et al., 2005b). The results of the summary effect size for the relationship between avoidance and positive symptoms was found to be non-significant with a summary effect of $r = -0.044$ (95% CI -0.546 – 0.482, $p = 0.881$). High heterogeneity was observed amongst these studies ($Q = 215.68, df = 6, p = 0.000, I^2 = 97.22\%$). Egger's test was applied to assess publication bias and was found to be non-significant ($p = 0.20$), which indicated that the results were not influenced by
publication bias. One study removed analysis showed that removing one study (Yanos et al., 2008) would have resulted in the summary effect approaching significance: $r = 0.189$ (95% CI -0.007 – 0.372, $p = 0.059$).

### 2.4.3.3 Associations between avoidance and anxiety

Using the SBQ, Freeman et al (2001) have found that avoidance is positively related to anxiety and this finding is supported by a study using the COPE, where a positive relationship was found with the behavioural disengagement subscale (Cooke et al., 2007). A further study found that this relationship with avoidance is specific to anxiety rather than to delusional distress (Freeman et al., 2007). In a study using two subscales of the WCQ that are considered avoidant, namely ignoring and resigning, it was found that ignoring was not significantly related to anxiety but that resigning was, the opposite pattern to that found with positive symptoms reported above (Lysaker et al., 2005b). Finally, no relationship was found in a FEP sample between anxiety and either avoidance or the avoidance subtype of social diversion (Allott et al., 2015). These six findings were combined in the meta-analysis.

The results of the summary effect size for the relationship between avoidance and anxiety is illustrated in Figure 3 (A). The analysis showed a significant association with a summary effect of $r = 0.291$ (95% CI 0.179 – 0.396, $p < 0.000$). This is approaching a medium effect size based on Cohen’s (1988) criteria. No heterogeneity was observed amongst these studies ($Q = 2.849$, df = 5, $p = 0.723$, $I^2 = 0.000$). Egger’s test was applied to assess publication bias and was found to be non-significant ($p = 0.50$), which indicated that the results were not influenced by publication bias. One study removed analysis suggested that none of the studies were having an undue influence over the result.

### 2.4.3.4 Associations between avoidance and depression

Positive relationships have been found with negative affect (MacAulay and Cohen, 2013), depression (Yanos et al., 2008) and emotional distress (Strous et al., 2005) suggesting that higher levels of avoidance are associated with lower mood. This has also been found with the avoidance subtype, behavioural disengagement (Cooke et al., 2007). However, other research has contradicted these findings. For example, Depp et al (2011) and Birchwood et al (2005) found no significant relationship between avoidance and depression in their
studies, although the trends were in a positive direction. Nonsignificant negative trends were found in a study by Allott et al (2015) and also by Ritsner et al (2003) between depression and the social diversion subscale of avoidance.

Five studies that measured depression could be included in the meta-analysis. The results of the summary effect size for the relationship between avoidance and depression is illustrated in Figure 3 (B). The analysis showed a significant association with a summary effect of \( r = 0.198 \) (95% CI 0.036 – 0.349, \( p < 0.017 \)). This is a small effect size based on Cohen’s (1988) criteria. Moderate heterogeneity was observed amongst these studies (\( Q = 7.242, df = 4, p = 0.124, I^2 = 44.77\% \)). Egger’s test was applied to assess publication bias and was found to be non-significant (\( p = 0.24 \)), which indicated that the results were not influenced by publication bias. One study removed analysis showed that removing one study (Yanos et al., 2008) would have resulted in the association no longer being significant with a summary effect of \( r = 0.181 \) (95% CI -0.050 – 0.394, \( p = 0.123 \)).

**2.4.3.5 Associations between avoidance and symptom related distress**

Brett et al (2014) found that distress related to unusual experiences was predicted by avoidance. However, this relationship disappeared when controlling for group membership which was diagnosed, at risk and undiagnosed samples. Freeman et al (2007) found that distress related to unusual beliefs was not related to avoidance. Similarly, no association has been found between avoidance and voice related distress (Singh et al., 2003). In contrast, Birchwood et al (2005) found a strong positive association between avoidance and distress as a result of persecutory beliefs.

Three studies could be included in the meta-analysis. The results of the summary effect size for the relationship between avoidance and symptom-related distress is illustrated in Figure 3 (C). The analysis showed a significant association with a summary effect of \( r = 0.216 \) (95% CI 0.008 – 0.406, \( p < 0.042 \)). This is a small effect size based on Cohen’s (1988) criteria. Moderate heterogeneity was observed amongst these studies (\( Q = 3.966, df = 2, p = 0.138, I^2 = 49.57\% \)). Egger’s test was applied to assess publication bias and was found to approach significance (\( p = 0.05 \)), which indicated that the results could be influenced by publication bias. Trim and fill analysis was conducted but did not identify any
potentially missing studies. One study removed analysis showed that removing any of the studies would have resulted in the association no longer being significant.

<table>
<thead>
<tr>
<th>Study name</th>
<th>Statistics for each study</th>
<th>Correlation and 95% CI</th>
</tr>
</thead>
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<td></td>
<td>Lower Limit</td>
<td>Upper Limit</td>
</tr>
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<td>0.096</td>
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</tr>
<tr>
<td>Cooke 2007</td>
<td>0.382</td>
<td>0.130</td>
</tr>
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<td>Freeman 2001</td>
<td>0.430</td>
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</tr>
<tr>
<td>Freeman 2007</td>
<td>0.280</td>
<td>0.081</td>
</tr>
<tr>
<td>Lysaker 2005 (ignoring)</td>
<td>0.200</td>
<td>-0.111</td>
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<td>Lysaker 2005 (resigning)</td>
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</tr>
<tr>
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<td>0.291</td>
<td>0.179</td>
</tr>
</tbody>
</table>

Figure 3: Forest plot for the associations between avoidance and A) anxiety, B) depression and C) symptom-related distress

2.4.4 Resistance and engagement

2.4.4.1 Prevalence of resistance and engagement in psychosis

The BAVQ was developed around twenty years ago and measures cognitive, affective and behavioural responses to voices (Chadwick and Birchwood, 1995). The behavioural responses fall in to two categories, resistance and engagement. Resistance relates to arguing with the voice and refusing to do what it says whereas engagement involves listening to the voice and seeking its advice (Chadwick and Birchwood, 1994). The measure has been used frequently in research since its development and it is consistently found that
malevolent voices are resisted while benevolent voices are engaged. Resistance appears to generally be more frequently reported by participants than engagement (e.g. Chadwick and Birchwood, 1995). No comparisons were found with nonclinical samples.

2.4.4.2 Association between resistance and engagement and positive symptoms

Two studies were found to report on the association between resistance and engagement and positive symptoms. Peters et al (2012) looked at the relationship with voice hearing and found a positive association with resistance and a nonsignificant negative association with engagement. In contrast to this, Upthegrove et al (2014) found nonsignificant trends in the opposite direction: a negative trend with resistance and a positive trend with engagement. However, they looked at the total PANSS positive score, rather than just the voice hearing item as was used above.

Meta-analysis was not conducted for these associations due to there being only two studies available for inclusion.

2.4.4.3 Association between resistance and engagement and anxiety

Chadwick et al (2000) found a positive relationship between anxiety as measured by the HADS and resistance but a negative relationship with engagement. Peters et al (2012) again found a positive association between resistance and anxiety as measured by the BAI. However, in this case no relationship was found between anxiety and engagement. Finally, the most recent study to be conducted looking at these associations (Morris et al., 2014) found no relationships between resistance or engagement and anxiety. However, in all these studies the pattern observed was the same: a positive association with resistance and a negative association with engagement. These three studies were combined for the meta-analysis.

The results of the summary effect size for the relationship between resistance and anxiety is illustrated in Figure 4 (A). The analysis showed a significant association with a summary effect of \( r = 0.431 \) (95% CI 0.193 – 0.620, \( p < 0.001 \)). This is approaching a large effect size based on Cohen’s (1988) criteria. Moderate heterogeneity was observed amongst these studies (\( Q = 5.266, \text{df} = 2, p = 0.072, I^2 = 62.02\% \)). Egger’s test was applied to assess publication bias and was found to be non-significant (\( p = 0.34 \)), which indicated that the
results were not influenced by publication bias. One study removed analysis suggested that
none of the studies had undue influence over the result.

The results of the summary effect size for the relationship between engagement and anxiety
approached significance with a summary effect of $r = -0.180$ (95% CI $-0.377$ – $0.034$, $p = 0.098$). Moderate heterogeneity was observed amongst these studies ($Q = 3.479$, $df = 2$, $p = 0.176$, $I^2 = 42.51\%$). Egger's test was applied to assess publication bias and was found to be significant ($p = 0.02$), which indicated that the results could be influenced by publication bias. A trim and fill analysis was conducted but this did not identify any missing studies. One study removed analysis demonstrated that removing one study (Peters et al., 2012) would have resulted in a significant negative effect being obtained: $r = -0.254$ (95% CI $-0.463$ – $-0.019$, $p < 0.034$).

2.4.4.4 Association between resistance and engagement and depression

Upthegrove et al (2014) divided their sample according to scores on the CDSS into “depressed” and “not depressed”. They found significant differences between these two groups according to their behavioural responses in that the depressed group reported both more resistance and engagement responses than the non-depressed group. Chadwick et al (2000) also found a relationship between depression as measured by the HADS and both resistance and engagement. The relationship with resistance was found to be in a positive direction and with engagement in a negative direction. Similarly, Peters et al (2012) and Birchwood et al (2004) again found positive associations between resistance and depression as measured by the BDI. However, in both of these cases no relationship was found with engagement. Finally, the most recent study to be conducted looking at these associations (Morris et al., 2014) found no relationships between resistance or engagement and the BDI. These five studies were included in the meta-analysis.

The results of the summary effect size for the relationship between resistance and depression is illustrated in Figure 4 (B). The analysis showed a significant association with a summary effect of $r = 0.335$ (95% CI $0.208$ – $0.451$, $p < 0.000$). This is a medium effect size based on Cohen’s (1988) criteria. Low heterogeneity was observed amongst these studies ($Q = 6.174$, $df = 4$, $p = 0.187$, $I^2 = 35.21\%$). Egger's test was applied to assess publication
bias and was found to be non-significant ($p = 0.11$), which indicated that the results were not influenced by publication bias. One study removed analysis indicated that none of the studies exerted undue influence over the result.

The results of the summary effect size for the relationship between engagement and depression is illustrated in Figure 5 (A). The analysis showed a significant association with a summary effect of $r = -0.189$ (95% CI $-0.356$ – $-0.011$, $p = 0.038$). Moderate heterogeneity was observed amongst these studies ($Q = 10.626$, df = 4, $p = 0.031$, $I^2 = 62.36\%$). Egger’s test was applied to assess publication bias and was found to be non-significant ($p = 0.45$), which indicated that the results were not influenced by publication bias. One study removed analysis indicated that removing any of the studies would have changed the result to non-significant. This was true for all the studies included except for Peters et al (2012).

2.4.4.5 Association between resistance and engagement and symptom related distress

The pattern of associations with symptom related distress was found to be largely similar to the associations with anxiety and depression reported above. Peters et al (2012) and Soppitt and Birchwood (1997) looked at voice related distress and found strong positive associations with resistance and non-significant negative associations with engagement. Trends were found in the same direction in a further sample of voice hearers, but these did not reach significance (Morris et al., 2014). Finally, Upthegrove et al (2014) and Birchwood et al (2004) found distress related to threat beliefs to be positively associated with resistance and negatively with engagement. These five studies were included in the meta-analysis.

The results of the summary effect size for the relationship between resistance and symptom related distress is illustrated in Figure 4 (C). The analysis showed a significant association with a summary effect of $r = 0.381$ (95% CI $0.241$ – $0.506$, $p < 0.000$). This is a medium effect size based on Cohen’s (1988) criteria. Low heterogeneity was observed amongst these studies ($Q = 6.513$, df = 4, $p = 0.164$, $I^2 = 38.59\%$). Egger’s test was applied to assess publication bias and was found to be non-significant ($p = 0.10$), which indicated that the results were not influenced by publication bias. One study removed analysis suggested that none of the studies exerted undue influence over the result.
The results of the summary effect size for the relationship between engagement and symptom related distress is illustrated in Figure 5 (B). The analysis showed a significant association with a summary effect of $r = -0.286$ (95% CI $-0.447 - -0.107$, $p < 0.002$). This is a small effect size based on Cohen’s (1988) criteria. Moderate heterogeneity was observed amongst these studies ($Q = 9.162$, df = 4, $p = 0.057$, $I^2 = 56.34\%$). Egger’s test was applied to assess publication bias and was found to be non-significant ($p = 0.38$), which indicated that the results were not influenced by publication bias. One study removed analysis did not have a significant impact on the result.

2.4.4.6 Association between resistance and engagement and threat appraisals

The finding that resistance is positively associated with voice malevolence has been replicated in several studies using the BAVQ (Beck-Sander et al., 1997; Birchwood et al., 2004; Chadwick and Birchwood, 1995; Chadwick et al., 2000; Favrod et al., 2004; Morris et al., 2014; Peters et al., 2012; Sayer et al., 2000; Upthegrove et al., 2014; van der Gaag et al., 2003).

Ten studies were available for inclusion in the meta-analysis. The results of the summary effect size for the relationship between resistance and malevolence is illustrated in Figure 4 (D). The analysis showed a significant association with a summary effect of $r = 0.658$ (95% CI $0.587 - 0.719$, $p < 0.000$). This is a large effect size based on Cohen’s (1988) criteria. Low heterogeneity was observed amongst these studies ($Q = 15.686$, df = 9, $p = 0.074$, $I^2 = 42.63\%$). Egger’s test was applied to assess publication bias and was found to be non-significant ($p = 0.18$), which indicated that the results were not influenced by publication bias. One study removed analysis did not influence the results.

Seven studies have also found negative relationships between engagement and malevolence (Birchwood et al., 2004; Favrod et al., 2004; Morris et al., 2014; Peters et al., 2012; Sayer et al., 2000; Upthegrove et al., 2014; van der Gaag et al., 2003). Three of these associations were found to reach significance (Birchwood et al., 2004; Upthegrove et al., 2014; van der Gaag et al., 2003). Two further papers state that negative relationships were found but these are not reported (Chadwick and Birchwood, 1995; Chadwick et al., 2000).
The results of the summary effect size for the relationship between engagement and malevolence is illustrated in Figure 5 (C). The analysis showed a significant association with a summary effect of $r = -0.372$ (95% CI $-0.512$ – $-0.212$, $p < 0.000$). This is a medium effect size based on Cohen's (1988) criteria. Moderate heterogeneity was observed amongst these studies ($Q = 16.387$, df = 6, $p = 0.012$, $I^2 = 63.39\%$). Egger's test was applied to assess publication bias and was found to be non-significant ($p = 0.13$), which indicated that the results were not influenced by publication bias. One study removed analysis indicated that no individual study exerted undue influence over the analysis.

<table>
<thead>
<tr>
<th>Study name</th>
<th>Correlation</th>
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<th>Upper limit</th>
<th>Z-Value</th>
<th>p-Value</th>
</tr>
</thead>
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</tr>
<tr>
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</tr>
<tr>
<td>Peters 2012</td>
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<td>0.771</td>
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</tr>
<tr>
<td>Overall</td>
<td>0.431</td>
<td>0.193</td>
<td>0.620</td>
<td>3.405</td>
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</tr>
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</tr>
<tr>
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<td>0.014</td>
</tr>
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<td>0.494</td>
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</tr>
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</tr>
<tr>
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</tr>
<tr>
<td>Overall</td>
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<td>0.208</td>
<td>0.451</td>
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</tr>
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<td>Morris 2014</td>
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<td>Van Der Gaag 2003</td>
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<td>0.546</td>
<td>0.822</td>
<td>6.336</td>
<td>0.000</td>
</tr>
<tr>
<td>Overall</td>
<td>0.658</td>
<td>0.567</td>
<td>0.719</td>
<td>13.376</td>
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</tr>
</tbody>
</table>

Figure 4: Forest plot for the associations between resistance and A) anxiety, B) depression, C) symptom related distress and D) threat appraisals
Safety seeking as measured by the SBQ has been found to be positively associated with resistance (Chaix et al., 2014; Upthegrove et al., 2014) and negatively with engagement (Upthegrove et al., 2014). The magnitude of these relationships however is low (-0.280 – 0.5). Therefore, although this suggests that they are all examples of responding to experiences, there is also variance between them.

2.4.5 Distraction

2.4.5.1 Prevalence of distraction in psychosis

Eight papers were identified that looked at distraction. Hayashi et al (2007) presented their participants who were all voice hearers with a list of coping strategies and asked if they used...
these strategies or not and how effective they found them to be. The distraction techniques were amongst the most commonly endorsed strategies. However, despite this, the strategies relating to distraction techniques were most often rated as partially successful rather than completely successful or unsuccessful. In contrast, it was reported elsewhere that distraction was most commonly reported by participants to be in their top three most helpful strategies (El Sheshtawy, 2011).

Two papers made a comparison between uses of distraction in different participant groups. Freeman and Garety (1999) recruited a group of participants with persecutory beliefs and a group with GAD and assessed use of distraction with the TCQ. They also used data from a previous study in order to compare their data to a non-clinical population. No differences were found between any of these groups on use of distraction techniques. Contrasting results are reported by Ward et al (2014) in their paper comparing two groups who both experienced comparable levels of psychosis but in one case were in contact with mental health services (clinical) and in the other had never received a diagnosis or care from services (nonclinical). Participants took part in two tasks designed to recreate situations of thought interference and hearing voices, they were then asked to rate response styles for how likely they were to use them if that situation should happen to them again. In response to both tasks, participants in the clinical group were significantly more likely to report using distraction as a response style than participants in the nonclinical group.

### 2.4.5.2 Association between distraction and positive symptoms

Generally, the associations reported between distraction and total positive symptoms are negative and close to zero. This was true for the studies by Ritsner et al (2003), Hayashi et al (2007) and Ward et al (2014). Two studies found positive trends but these were still nonsignificant and close to zero (Allott et al., 2015; Brockman et al., 2014). These five studies were included in the meta-analysis.

The results of the summary effect size for the relationship between distraction and positive symptoms was not significant with a summary effect of $r = -0.036$ (95% CI $-0.135 - 0.063$, $p = 0.471$). No heterogeneity was observed amongst these studies ($Q = 1.396$, $df = 4$, $p = 0.845$, $I^2 = 0.000$). Egger’s test was applied to assess publication bias and was found to be
non-significant (p = 0.48), which indicated that the results were not influenced by publication bias. One study removed analysis suggested none of the studies were unduly influencing this result.

When looking specifically at unusual beliefs, a significant negative correlation was found with paranoia as measured by the PANSS (Ritsner et al., 2003) and a negative association was found between distraction and delusions as measured by the MASAH (Hayashi et al., 2007).

2.4.5.3 Association between distraction and anxiety

Similar to above, the associations with anxiety were found to be small and nonsignificant. Morris et al (2014) report a negative trend between distraction and anxiety as measured by the BAI whereas Allott et al (2015) and Ward et al (2014) report nonsignificant positive trends in their papers using the HAMA and BAI respectively. Data from these three studies was combined for the meta-analysis.

The results of the summary effect size for the relationship between distraction and anxiety was not significant with a summary effect of \( r = 0.002 \) (95% CI \(-0.263 – 0.266, p = 0.990\)). Low heterogeneity was observed amongst these studies (\( Q = 3.611, df = 2, p = 0.164, I^2 = 44.61\% \)). Egger’s test was applied to assess publication bias and was found to be nonsignificant (p = 0.22), which indicated that the results were not influenced by publication bias. One study removed analysis did not significantly change the result.

2.4.5.4 Association between distraction and depression

In relation to depression, Morris et al (2014) found a significant negative association with distraction. Similarly, Ward et al (2014) found a nonsignificant negative trend. The only other paper to measure the association between depression and distraction found no association (Allott et al., 2015).

Three papers were included in the meta-analysis. The results of the summary effect size for the relationship between distraction and depression approached significance with a summary effect of \( r = -0.219 \) (95% CI \(-0.425 – 0.009, p = 0.059\)). Low heterogeneity was observed amongst these studies (\( Q = 2.641, df = 2, p = 0.267, I^2 = 24.27\% \)). Egger’s test was applied to assess publication bias and was found to be nonsignificant (p = 0.38), which
indicated that the results were not influenced by publication bias. One study removed analysis indicated that removing one study (Allott et al., 2015) would have resulted in a significant effect being found: $r = -0.325$ (95% CI -0.519 - -0.099, $p < 0.005$).

2.4.5.5 Association between distraction and distress related to symptoms
Morris et al (2014) found that distraction as measured by the TCO was not significantly associated with the PSYRATS measure of voice-related distress. This association is not measured or not reported in the other papers in this section.

2.4.5.6 Association between distraction and threat appraisals
As two papers in this section also made use of the BAVQ, the relationship between distraction and voice malevolence could be considered. In both cases the relationship was nonsignificant however, one study reports a negative trend (Brockman et al., 2014) and the other positive (Morris et al., 2014).

2.4.6 Hypervigilance

2.4.6.1 Prevalence of hypervigilance in psychosis
Four studies were identified that looked at hypervigilance. Two of these papers used the DACOBS attention to threat subscale (van der Gaag et al., 2013; Veling et al., 2014) and two a visual scan path task (Freeman et al., 2000; Phillips et al., 2000). The papers using the DACOBS both compared a service user population with a general population control group. They both found that the service user groups scored higher on the attention to threat subscale than the control group. Van der Gaag et al (2013) used a clinical sample with schizophrenia spectrum diagnoses and found that their mean score on the attention to threat scale was 25.75 with a normative range of 23 – 27. The mean is not provided for the control group however, their normative range is lower at 19 – 21. Veling et al (2014) found a similar result with their first episode psychosis sample. Their mean was 24.8, slightly lower than the schizophrenia spectrum sample reported above. The mean in the control group in this paper was 19.3.
2.4.6.2 Association between hypervigilance and positive symptoms

Freeman et al (2000) reported that there was no correlation between positive symptoms as measured by the SAPS with either the total number of areas looked upon in the images or the number of times an area was repeatedly looked at in their visual scan path task.

2.4.6.3 Association between hypervigilance and threat appraisals

Van der Gaag et al (2013) found a significant positive correlation between the attention to threat bias scale and paranoid thoughts as measured by the GPTS, both for the social reference subscale and the paranoid thoughts subscale. However, Veling et al (2014) using a virtual reality environment did not find an association between attention to threat as measured by the DACOBS and feelings of paranoia in virtual reality.

The two studies using the visual scan path task found similar results that contradicted their initial hypotheses in both cases. Both studies recruited samples of participants with persecutory delusions and compared them to control groups. In the case of Freeman et al (2000), the control groups consisted of one group of people with GAD diagnoses and one group of people with no psychiatric diagnoses. Phillips et al (2000) also recruited a group of people without psychiatric diagnoses as a control as well as a second group of participants with a schizophrenia diagnosis, this time in the absence of persecutory beliefs. It was found that the differences that emerged between groups were as a result of the participants with persecutory delusions looking at fewer areas of certain images and less often repeatedly checking images. Specifically, Freeman et al (2000) found that the group with persecutory beliefs in their study looked at less areas in the potentially threatening pictures and also in the happy pictures. This was intended as a measure of how much the participants were scanning the scenes for signs of threat. No differences were found for direct threat or hidden threat pictures. Further analysis revealed that the group with persecutory delusions were spending less time looking at the smiling faces in the happy pictures. The same was not found for the direct or potential threat pictures. Phillips et al (2000) also reported that the group with persecutory beliefs looked at less areas of each image than the two control groups and this was particularly true for the neutral picture. Both studies also found that the participants with persecutory beliefs repeatedly checked the images less than the other
groups. This was true for the potential threat and happy pictures in the Freeman et al (2000) study but not for the direct or hidden threat images. Similarly Phillips et al (2000) found the greatest difference was with the neutral images. Therefore it appears that the individuals with persecutory delusions viewed the more threatening images in a similar style as the control groups but for the more ambiguous, neutral and happy images they looked at fewer areas and repeatedly checked less. This is contrary to predictions that this group would spend more time scanning for signs of threat.

2.4.7 Thought control

One study was identified in this area. This study used ESM to investigate thought control in relation to auditory hallucinations and persecutory beliefs (Hartley et al., 2015). Significant positive associations were found between thought control and each of these variables, both in terms of severity and distress. In all cases, associations were significant both for the time immediately before the current beep and also for the time since the last beep. The only exception to this was for the severity of hallucinations, which was significant for the current beep but not for the time since the last beep.

2.5 Discussion

2.5.1 Summary of results

The results indicate that people experiencing psychosis commonly respond to their unusual experiences with behavioural and cognitive strategies intended to manage their difficulties. The majority of participants reported using such strategies and use of these strategies was related to distress.

In relation to safety seeking as measured by the SBQ and resistance, there was a clear pattern that these responses are associated with increased anxiety, depression, symptom related distress and appraisals of threat. Avoidance was also found to be related to each of these outcomes, apart from appraisals of threat where there was no data available to include.
It was also found that the association with threat appraisals mediates the relationship between safety seeking and distress, suggesting that safety seeking responses are an attempt to reduce threat as the cognitive model would predict rather than arising as a response to the distress itself (Gaynor et al., 2013). Further, although non-clinical and clinical samples were found to report the same level of psychotic experiences, they did differ on levels of distress, threat appraisals and safety seeking responses (Gaynor et al., 2013). This suggests that it is not the experience of psychosis per se that determines whether someone will need help from mental health services, but rather their appraisals and behavioural responses to these experiences. This is in keeping with cognitive models of psychosis that emphasise the importance of appraisals of experiences (Chadwick and Birchwood, 1994; Garety et al., 2001; Morrison, 2001).

The results relating to the engagement response style showed the opposite pattern to those reported above in that it was associated with reduced symptom related distress, depression and threat appraisals.

It was found that safety seeking was positively related to resistance and negatively to engagement. This suggests that safety seeking responses more closely relate to attempts to fight or suppress distressing experiences, rather than engaging with them. It is possible that engagement allows for more opportunity for challenging of beliefs and reality testing, resulting in it being associated with reduced distress as found here.

In relation to distraction, hypervigilance and thought control, the results were mixed. Due to low number of studies available and non-significant results being obtained here, firm conclusions cannot be drawn and further research is needed.

The positive symptoms of psychosis such as hearing voices or holding unusual beliefs were not found to be significantly associated with any of the response styles. Safety seeking responses showed a positive trend whereas distraction and avoidance showed negative trends. This suggests that it is not the experiences themselves that are being responded to but rather the distress and appraisals arising from these experiences. This finding is consistent with the cognitive model of psychosis.
This review highlights the overlap and complexity of relationship between safety seeking and coping.

2.5.2 Alternative theoretical frameworks

Although many of the meta-analyses reported here show a clear pattern of association between behavioural responses and distress, the results reported within individual studies are mixed with some studies reporting positive relationships and others negative between the same variables. This appears to be particularly true with the response style of distraction, with our analyses unable to clarify this relationship. It is possible that the mixed results could be a reflection of the complexities in defining safety seeking and distinguishing it from coping, as previously discussed. It is possible that sometimes use of safety seeking responses could be helpful as it may allow for exposure to the feared situation and thus access to evidence that disconfirms threat beliefs (Rachman et al., 2008) while at other times use of safety seeking could prevent cognitive change (Powers et al., 2004). It may also not be possible to make generalisations about responses that are helpful or unhelpful due to the impact of contextual factors and individual differences (Lazarus and Folkman, 1987). It is, therefore, suggested that the current definition of safety seeking behaviours is too rigid to fully capture the range of responses that people are using to manage their distressing experiences. Safety seeking has been defined as behaviour intended to prevent a feared catastrophic outcome. When this outcome does not occur, it is interpreted as a "near miss", that threat was averted only because of use of the behavioural response. However, this definition does not allow for situations where there really is a possibility of catastrophe, or it really is a near miss. This could arise as individuals experiencing psychosis are likely to have experienced adverse life events (Varese et al., 2012b), are more likely to be the victims of violent crime (Hiroeh et al., 2001), are more likely to be born and raised in an urban area (Mortensen et al., 1999), in poverty or in institutional care (Bentall et al., 2012). They could also be experiencing threatening or commanding voices which could result in increased risk to themselves. Therefore, where threat appraisals are realistic, responses may be more adaptive. Catastrophic appraisals of emotional arousal may also be maintained by mental health professionals and carers, since increases in such experiences can lead to hospitalisation.
Therefore, it appears that a more flexible conceptualisation of safety seeking is needed to allow for responses sometimes being helpful and sometimes unhelpful. A model of response styles would need to be able to account for individual differences and contextual factors. It may also be that due to the adverse life events that people with psychosis have often experienced, safety seeking behaviours could have played an important role in survival at these times but now, away from this situation, they are no longer helpful (Morrison et al., 2003).

There are several alternative frameworks that could be used to inform the understanding of response styles. The S-REF model (Wells and Matthews, 1994a) includes choice of coping strategies and, unlike the safety seeking model, it allows for both adaptive and maladaptive responses. This model suggests that unhelpful thinking patterns known as CAS can lead to emotional distress. These unhelpful strategies could include rumination, hypervigilance for threat and increased self-focused attention. These strategies are ironic because they are employed with the intention of reducing distress but can actually enhance awareness of threat and so increase distress. These strategies place demands on attention which may interfere with the ability to access and make use of effective coping responses (Wells and Matthews, 1994b). Choice of strategy will be dependent on accessing the memory for coping strategies used previously and this will be biased by beliefs about the self also held in the memory and procedural beliefs such as “I need to be paranoid to survive”. This also includes compensatory beliefs that provide a cognitive mediation between threat appraisals and choice of response. For example, if the mediating belief is that pretending to be dead will provide protection from the threat of being killed by a persecutor then the responses chosen will include behaviours such as keeping very still and holding the breath (Nothard et al., 2008). This, therefore, means that the strategy selected will vary from person to person and from situation to situation and will be meaningfully related to the threat appraisal. Self-focus will not always result in selection of unhelpful strategies if a person feels confident in the situation and has positive self-beliefs. This model, therefore, allows for more flexibility when considering cognitive and behavioural responses than the safety seeking model, which assumes that all such responses are unhelpful.
The results reported here can also be understood with reference to Lazarus and Folkman’s coping model, which sees coping conceptualised as a process (Lazarus and Folkman, 1987). The model suggests there are two key points at which appraisals are made. The primary appraisal relates to whether or not the situation poses a threat. If no threat is perceived then no emotional response is produced. If a threat is perceived then the secondary appraisal is made which relates to ability to cope. This could include questioning both ‘can I cope in this situation?’ and, if so, ‘how can I cope?’ as with the compensatory beliefs described as part of the S-REF model. It is when there is a perception that the situation cannot be coped with that a negative emotional state will be produced. The model also emphasises the interaction between these two appraisals in terms of assessing what is at stake (primary appraisal) and how effective any coping strategy is likely to be (secondary appraisal) in determining the level of stress that will be experienced (Lazarus and Folkman, 1984). These appraisals will be influenced by factors relating to the individual person and the situation and, therefore, both whether an event is appraised as threatening and the perception of ability to cope will vary between people and within the same person at different times. Thus it would not be possible to say whether a coping response would be adaptive or not without consideration of these other factors and these could even change within the same encounter as a result of changes in the environment or reappraisal (Lazarus and Folkman, 1987). Therefore, there is a danger that generalisations are made about coping responses that will be inaccurate if it is not thought of as a fluid process and changeable depending on person, time and place (Lazarus and Folkman, 1987).

An example of this could be that within a context that cannot be changed, such as physical illness, avoidant strategies, such as denial, may be more adaptive (Carver et al., 1989). However, within other contexts, as seen in this analysis, avoidance may not be helpful.

The model suggests that it is the person’s confidence in their ability to cope (secondary appraisal) in any given situation that will determine whether or not distress is experienced. The secondary appraisal could change in different contexts and at different times which could explain why there is considerable variation in our results. It could be that there are situations where use of safety seeking responses during exposure can increase feelings of
control over experiences (Milosevic and Radomsky, 2008), thereby improving choice of response style and lowering distress.

There could be further complexities in relation to the secondary appraisal that are specific to the experience of psychosis. It has frequently been reported that people with a diagnosis of schizophrenia can experience some cognitive difficulties such as with memory and concentration, which reduces the resources available to them. This can also be overestimated due to holding beliefs that failure is likely, which may result in low expectations for successful coping (Rector et al., 2005). Such secondary appraisals may, therefore, be more likely to be inaccurate due to low self-efficacy and underestimation of available resources (Rector et al., 2005). This could produce a vicious cycle, whereby certain response styles serve to further reduce the available cognitive resources (Sloan and Telch, 2002). As this model outlines, feeling unable to cope results in experience of distress.

The primary appraisal of whether a threat is present or not is also important, and may be more complex when considering psychosis, since it may be both inaccurate, in that the perceived threat may not be real or overestimated, and held with complete conviction, meaning that the stakes are perceived as very high. The primary appraisal may also differ in relation to psychosis as compared to anxiety due to the fact that some unusual experiences may be appraised in a positive fashion, which is not usually the case in anxiety. Some voices may be experienced as supportive or providing company and there could be positive beliefs around paranoia being necessary for staying safe. These positive and negative appraisals could moderate the relationship between coping and distress as seen here in relation to the resistance and engagement response styles.

It may be that coping is only adaptive and helpful in any given situation to the extent that there is an accurate fit between the appraisal of what the experience means and what it actually means, followed by appraisal of coping options available that would be appropriate for that situation. If the situation is misinterpreted, then a coping strategy may be selected that is unhelpful. Alternatively, the situation could be accurately interpreted, but a coping
strategy selected that does not fit with the situation is also unlikely to be helpful (Lazarus and Folkman, 1987).

An analysis may also take place of how likely the threat is to occur, how severe the consequences would be and how likely the response style is to prevent this. For example, wearing a seat belt in a car is considered adaptive behaviour and something that most people do every day, despite the fact that we are not involved in an accident every time we drive a car (Rachman et al., 2008). Given that wearing a seat belt halves the risk of fatality in a car accident for most people the efficacy of doing this perhaps outweighs the fact that in most cases it is not required. In relation to psychosis, very strong conviction in threat beliefs coupled with low confidence in success of response styles could result in heightened distress, poor choice of coping strategy and increased levels of avoidance, as found here.

2.5.3 Limitations and implications

There are several limitations of this review. Firstly, as a large number of the studies identified for inclusion in this review came from the coping literature and due to the overlap in definition, it would have been of interest to conduct a full, systematic search on coping in psychosis to complement the current search and to provide the interface that may be needed between these fields.

Secondly, as the bulk of the studies included are correlational by design, the overall quality of the studies would be considered low and strong conclusions cannot be drawn. It may also be that cross sectional methodology is inappropriate for the study of response styles as measuring a single point in time will not capture the fluid process that this is likely to be (Lazarus and Folkman, 1987). Further research is needed that has an experimental or longitudinal design in order to determine whether response styles are involved in cause or maintenance of psychosis and how responses may change over time.

Finally, in several of the analyses conducted, heterogeneity was in the moderate range and it could be that the studies were too dissimilar to combine. It would have been interesting to investigate this heterogeneity further by conducting subgroup analyses; for example, looking at voices versus persecutory beliefs. Meta-regression is another technique that could have been employed, however, due to the small number of studies included in these analyses; it
was felt that this would not have been meaningful. The one study removed analysis also highlighted the problem of heterogeneity in some cases as some individual studies were found to exert undue influence over the results. Publication bias was found to be a problem in two analyses and the trim and fill method failed to identify any hypothetically missing studies. This could again be due to the low sample size resulting in the analysis being underpowered. A further issue with the meta-analysis could be that some measures were not temporally matched. For example, analysing a response measure that relates to enduring response styles with a symptom measure that focuses on a specific two week period. Meta-analytic results should, therefore, be interpreted with caution.

The results from this review suggest several avenues for further research. Due to the problems with measurement discussed, it appears that a new questionnaire tool would be useful that could clearly address responses being used as a consequence of distress arising from experiences and with the specific intention of minimising threat.

In addition, it would be useful to conduct some experimental research to follow up on the results from these mostly correlational studies. Participants could be asked to carry out more or less of certain responses and ratings of anxiety, distress in relation to experiences and incidence of the experiences themselves could be recorded. This would help to clarify the direction of the relationship between these different aspects and could also identify if there are any helpful and unhelpful ways of responding to the experience of psychosis. Further study should also focus on participants beliefs about coping, in particular their perceived confidence in their ability to cope and how this influences strategy choice and distress levels.

There are several clinical implications arising from this review.

In general, reducing safety seeking behaviours, including avoidance and resistance, seem likely to be helpful in the longer term reduction of distress. However, it should not be assumed that a coping style is either helpful or unhelpful. The clinician should work with each individual to find out what each response style means to them and help them to assess its function and purpose. A flexible approach could be taken to acknowledge that in some situations it might be helpful to respond in a certain way that in a different situation could be
an unhelpful response. Formal evaluation of current and historical advantages and
disadvantages of specific strategies could be helpful.

Finally, it could be that teaching attention training strategies could be a helpful approach to
disrupt unhelpful thinking patterns that could be interfering with the ability to access and
make use of effective coping strategies. Working on reduction of negative symptoms and
increasing self-efficacy could also help to increase confidence in ability to cope which could
lower distress and lead to selection of coping strategies that are more adaptive for the
situation in question.
Chapter 3: Methodology

3.1 Overview of research papers

This chapter is intended to provide a description of and rationale for the methodology used in this thesis. It was decided to use mixed research methodology. Due to the range of research questions and aims, it was felt that this would be the most appropriate means of answering them (Johnson and Onwuegbuzie, 2004). It has been said that “qualitative and quantitative research used together produce more complete knowledge necessary to inform theory and practice” (Johnson and Onwuegbuzie, 2004, p. 21).

The overall aim of this thesis was to improve the understanding of cognitive and behavioural responses to the experience of psychosis.

The first specific aim was to discover the type of cognitive and behavioural responses people experiencing psychosis use, why these have been chosen and what the implications of their use are. Study one was intended to answer these questions using qualitative, grounded theory methodology.

The next aim was to develop a measure of common responses to unusual experiences and to use this to explore how responses fit within a cognitive and metacognitive framework of psychosis. Studies two and three were intended to address these issues. Study two reports on questionnaire development and validation including both exploratory and confirmatory factor analysis. Study three makes use of structural equation modelling to explore the relationships between the subscales of common responses identified in study two and voice hearing experiences.

The final aim was to manipulate response styles to investigate the impact of this on the experience of psychosis and distress levels. Study four uses experimental methodology to answer these questions.

3.2 Qualitative methodology

In order to explore in depth how people respond to the experience of psychosis and what the implications of such responses are, a decision was made to use grounded theory, a qualitative approach to data analysis.
Qualitative research is conducted to “understand and represent the experiences and actions of people as they encounter, engage, and live through situations” (Elliott et al., 1999, p.216). It is an attempt to see things from the individual’s perspective, setting aside the researcher’s own perspective as much as possible (Elliott et al., 1999). This seems particularly important in Clinical Psychology and with experiences such as psychosis, to attempt to understand these experiences from those who are experiencing it. Qualitative research has been criticised on the grounds that the sample sizes are usually small, the results are not generalizable and it is not seen as objective and rigorous in the same way as quantitative research (Yardley, 2000). However, qualitative and quantitative studies should not be judged by the same criteria (Yardley, 2000). Conducting qualitative research according to guidelines specifically developed for this type of methodology means that high quality; rigorously conducted research can be produced (Elliott et al., 1999).

There are several different analysis strategies that are commonly used by qualitative researchers. Considered here will be thematic analysis, interpretative phenomenological analysis (IPA) and finally grounded theory, as this was the approach chosen here.

The aim of thematic analysis is to identify patterns or themes that re-occur within a data set and to describe the data according to these themes (Braun and Clarke, 2006). It is thought to be a flexible approach to data analysis without the constraints of being tied to a particular theoretical position. However, the author should state what the theoretical position of the analysis is (Braun and Clarke, 2006). In contrast to the two techniques to be discussed below, thematic analysis can be either inductive, meaning that the themes are allowed to emerge freely from the data, or top-down, where data is analysed with reference to previous research or pre-defined theories (Braun and Clarke, 2006). IPA and grounded theory are both inductive approaches (Charmaz, 2006; Smith, 2004). Thematic analysis has a less precise procedure than for example IPA, the process of which has been clearly described (Smith, 2004). This has been seen as a weakness of thematic analysis and so Braun and Clarke (2006) have produced a set of six guidelines for conducting thematic analysis. These include the initial coding of the data, grouping codes into themes and then refining these themes before finally naming the themes and writing up the analysis. It is important that the
themes are at an analytical level and not simply a description of the data (Braun and Clarke, 2006). Themes should also form a coherent and meaningful framework that can be related to existing theory. Without this, unfortunately, thematic analysis has limited explanatory power (Braun and Clarke, 2006).

IPA is frequently used in health psychology research (Brocki and Wearden, 2006) and is concerned with an individual’s interpretation of events as opposed to creating an objective or generalised view of this (Smith, 1996). This approach also assumes that people do in fact make such interpretations of events and are not just passively present (Brocki and Wearden, 2006). Therefore, interviewing and analysis focuses on participants descriptions of the object of interest (Starks and Trinidad, 2007). Data collection normally consists of semi-structured interviews but could also include other techniques, such as participant diaries (Smith, 2004). Focus group methodology is not recommended due to the prominence of the individual in IPA (Smith, 2004), however, a review of research using IPA has found that focus groups have been used for data collection (Brocki and Wearden, 2006). The goal of IPA is to produce a rich description of individual’s experiences (Starks and Trinidad, 2007). The perspective of the researcher is also taken into consideration in that they will interpret the participant’s perspective in a certain way (Smith, 2004). The IPA researcher needs to acknowledge this in their work however, this is not always mentioned in published papers and this presents a limitation to this approach (Brocki and Wearden, 2006). Analysis initially focuses on understanding each participant in as much detail as possible before finally looking for similarities or differences between participants. As a result of this, IPA studies normally employ a small sample size or even one in depth case (Smith, 2004). The aim of research using this methodological approach is not generalisability (Brocki and Wearden, 2006).

Grounded theory methodology provides researchers with a clear framework for data collection and analysis with the central aim of producing a theory that is clearly grounded in the data (Charmaz, 2006). The procedure is more structured than, for example, thematic analysis, however, it does also allow for flexibility in the research process (Charmaz, 2006). Interviews are commonly used as part of developing a grounded theory but anything that
occurs during the interview could be used as data. For example, as well as what the participant says, anything that the researcher observes or feels during the interview could also be relevant (Charmaz, 2006). In contrast to IPA methodology described above, analysis occurs alongside data collection and constant comparison between interviews and data takes place (Charmaz, 2006). Grounded theory was selected as the most appropriate methodology here as the aims were not to describe the experiences of the participants', as might be the case using IPA, but rather to explain why the experiences were happening (Starks and Trinidad, 2007), in this case responses to psychosis. It was felt that as this is a very clinically relevant topic, moving beyond understanding and towards developing an explanatory framework would be more beneficial for the field and have more implications for clinical practice (Starks and Trinidad, 2007). The grounded theory methodology employed in study one reported here followed the guidelines laid out by Strauss and Corbin (1998) and Charmaz (2006) and will be described in detail below.

A social constructivist stance was adopted, meaning that the data is viewed as being created by the researcher and the participant (Charmaz, 2006). We do not exist in a vacuum and therefore data will be created from the social context of the researcher and participant (Charmaz, 2006). The theory that is developed is not a single objective fact but rather is specific to the context in which it was developed (Charmaz, 2006). The implications of this are that the researchers interpretations of their own social world must be taken in to account as this may influence analysis. This is known as reflexivity (Malterud, 2001) and will be considered in more detail below.

3.2.1 Recruitment and sampling
Prior to initiating the study, the author applied for National Health Service (NHS) Research Ethics Committee (REC) approval. This was approved by the National Research Ethics Service (NRES) Committee North West – Greater Manchester West (reference: 13/NW/0599). Management approval was also received from the NHS site where recruitment was to take place (Greater Manchester West Mental Health NHS Foundation Trust).
Once approval was received, recruitment began by presenting the study within relevant services. This was mainly Community Mental Health Teams (CMHTs) and Early Intervention Teams (EITs) but also included some voluntary sector services and, later in recruitment, inpatient services. As per the approved protocol, potential participants were initially approached by a member of their care team about the study and, if interested, provided consent for the researcher to contact them. The researcher would then initiate contact by phone to explain the study in more detail and answer any questions the individual may have. A participant information sheet (PIS) would be sent by post to the potential participant and they would be allowed a minimum of twenty-four hours to consider this before being consented in to the study.

The researcher arranged to meet with each participant in a place where they felt comfortable and talked through the PIS, ensuring this information was understood. Each point on the consent form was then read to the participant and they were asked to initial each box if they were happy with the information. The participant and researcher both signed the consent form. The PIS and consent form can be seen in Appendices One and Two respectively.

Theoretical sampling is the practice of recruiting participants according to themes that are emerging in the data so as to explore different aspects or properties of this theme (Strauss and Corbin, 1998). It is considered an essential aspect of grounded theory methodology but it is also acknowledged that it can be difficult to achieve due to difficulty accessing certain settings or groups (Strauss and Corbin, 1998). A key theme that emerged during study one was the different levels in the way that participants responded to their experiences and how this appeared to be related to how much they were struggling with their difficulties. Therefore, sampling proceeded to try and identify different dimensions to this and included sampling people who had received CBT, who were inpatients and who had been experiencing their difficulties for longer or shorter periods of time.

Inclusion and exclusion criteria were specified in general terms as it was not known at the beginning of the study what direction recruitment might need to take. Participants could take part if they had experience of schizophrenia, schizoaffective disorder, psychosis or psychotic-like experiences, were aged 16 – 65 and in regular contact with a health
professional (Psychiatrist, Care Coordinator or GP). However, they were excluded if they had a diagnosis of developmental disability or organic impairment, had a primary diagnosis of substance misuse, were non-English speaking or if they were unable to provide informed consent.

Recruitment continued until it was felt that theoretical saturation had been reached. That is, until themes seemed to be well developed and new information in relation to a theme had not emerged, despite further interviews (Strauss and Corbin, 1998). Despite the central role of the concept of theoretical saturation in qualitative research, there has been no description available of how this might be estimated (Guest et al., 2006). This is important since most projects require an a priori estimation of sample size. Grounded theory samples tend to be larger than those for other qualitative methodologies, such as IPA as discussed above. For example, Charmaz (2006) describes a sample of 25 as a small study. However, an analysis of sixty qualitative interviews concluded that saturation was reached at interview twelve, demonstrating that small samples can be sufficient if the participants are relatively homogenous and the line of inquiry is specific (Guest et al., 2006). Therefore, it is felt that the relatively homogenous sample of fifteen recruited here was sufficient for study one.

Although all participants consented to direct quotes being used in publications and presentations of this study, their names were changed to protect their identity. Some participants selected their own pseudonym; others were selected by the researcher.

3.2.2 Interviews and analysis

Semi-structured interviews were used to collect the data for study one. When conducting grounded theory interviews, it is not necessary to have a pre-defined set of questions as the interview should be flexible enough to follow lines of inquiry initiated by the participant. However, a set of open ended questions can help to keep the researcher focused and provide a prompt for participants (Charmaz, 2006). This may become more detailed and specific as interviews and analysis progress and there are certain emerging themes the researcher would like to explore (Strauss and Corbin, 1998).

The topic guide for study one was initially developed through reviewing similar interview schedules in the field. One was a safety behaviour questionnaire that had been employed
as part of study looking at the relationships between safety seeking and appraisals in relation to voice hearing (Nothard et al., 2008). The other was a service-user researcher led study looking at the impact of diagnosis (Pitt et al., 2009). Two service-user researchers with experience of qualitative interviewing also provided feedback on the initial draft. This resulted in removal of several questions that could be considered closed. For example, how often the response is used and how long it has been used for and replacing these with a more open prompt to describe a specific incident when safety seeking responses had been used. This resulted in a guide with four broad areas with several open ended prompts for each. The four areas were background (has anything been bothering you recently?), responses (how do you cope when you feel like that?), advantages and disadvantages (how helpful is this response?) and alternatives (Have you tried other ways of coping in the past?).

As the analysis developed, six further versions of the interview were developed building on the initial interview to explore key ideas. The final topic guide can be seen in Appendix Three.

As each interview was conducted, it was transcribed verbatim by the researcher and analysed before conducting the next interview. This approach is central to conducting grounded theory so that sampling and questioning can be driven by the emerging theory (Charmaz, 2006). The initial stage of analysis was to conduct line by line coding. This means that every line of the interview was labelled (Charmaz, 2006). This form of coding means that the data is very closely scrutinised (Strauss and Corbin, 1998). It will result in a large number of labels which the researcher can begin to group into categories based on shared properties. This initial process is referred to by Strauss and Corbin (1998) as open coding. The next stage they suggest is axial coding. This involves making more connections between categories, understanding how they relate to each other and which may actually be subcategories of a larger category (Strauss and Corbin, 1998). The final stage is selective coding (Strauss and Corbin, 1998). This involves integrating the categories into a theoretical framework (Strauss and Corbin, 1998). Selective coding begins with the selection of a central category from the data which has the power to connect the other categories together. For study one, this was determined through discussions in supervision. This is a helpful process as the researcher can become very immersed in the
data and discussion with someone else can help to gain some distance (Strauss and Corbin, 1998). Reviewing of memos and field notes revealed that this category had been consistently running through the analysis. Use of diagramming techniques also supported development of the final interconnections between the themes.

Throughout the analysis, memos were used to make a note of initial themes of interest, to make comparisons between different sections of data or different themes and to help develop ideas as the research process progressed (Charmaz, 2006). Memos also ensure a record of the analysis is kept and allow for going back to an earlier idea in the light of new interviews and seeing how these fit together (Charmaz, 2006). This process will highlight information that is missing from the categories which in turn will help to direct sampling as the researcher tries to fill in these gaps.

NVivo (version 9) was used to support the analysis. Transcription was conducted using NVivo to allow for easier navigation between transcript and audio. Themes can be coded within each interview which then allows for viewing all relevant quotes in one place and for checking how much coding has been done within each theme. NVivo also allows for summaries to be produced such as counts of word frequency. However, much analysis was conducted simply using paper and pen. This allowed for ease of taking quotes to supervision and being able to rearrange them visually when creating the connections between themes.

3.2.3 Rigour, quality and reflexivity

Although criteria for judging the quality of qualitative research are required, these should also be used flexibly to allow for creativity in the process (Yardley, 2000). Four criteria for conducting qualitative research to a high standard have been suggested by Yardley (2000). The first criterion is consideration of context. This relates to consideration of the social context in which the research is taking place, both in terms of the researcher’s perspective, the participant’s perspective and also the relationship between the two. It also relates to the theoretical context and making sense of how the analysis fits with previous research on this topic. Secondly, commitment and rigour are emphasised and relates both to the collection of sufficient data for meaningful analysis as well as the completeness of the analysis.
conducted. Transparency and coherence refers to keeping detailed records of methodology used and how analysis developed as well as disclosing the viewpoint of the researcher and acknowledging the possible impact of this. The final criterion is impact and importance. It is argued that this is the most important factor and relates to contribution to understanding in any given area and utility for those it was intended for.

Reflexivity is an important aspect of qualitative research. This is the practice of acknowledging the researchers own preconceptions, views and opinions about the topic and checking that these are not influencing the data collection or analysis (Malterud, 2001). In this case, the researcher was working within a research team who take a normalising view of psychosis and promote recovery and treatment choice. The researcher had been working for the past four years on trials looking at the efficacy of CBT for psychosis and therefore had preconceptions about the role of safety seeking behaviours within a cognitive model. At the beginning of the study, the researcher expected that participants would describe using safety seeking responses to manage catastrophic misinterpretations of threat and, in so doing, their distress and threat appraisals would be maintained. It was, therefore, a surprise to find that participants actually described many instances of real threat. For example, using safety seeking responses to prevent self-harm for which they had previously been hospitalised. Responses were, therefore, more understandable than had been initially assumed. It is acknowledged that the initial topic guide was developed reflecting the traditional view of safety seeking responses and had to be adapted as unexpected themes emerged. The researcher had to reflect on such preconceptions and ensure that the analysis was grounded in the data (Malterud, 2001).

As a validity check of the final analysis, member checking was conducted. This is the practice of discussing the analysis with the participants themselves (Charmaz, 2006). It has been suggested that use of this procedure can actually cause distress to participants instead of empowering them (Goldblatt et al., 2011). Therefore, a sensitive approach was taken here. Participants all consented at the time of the interview to be contacted again to discuss study results. However, on re-approaching participants after the analysis had been conducted, four declined to provide feedback and they were not contacted again. Four
could not be contacted due to change in contact details and two the researcher did not approach due to concerns about causing them distress or over-burdening them. The remaining five participants agreed to take part. They were asked what format they would prefer for this to take place, either face to face individually, as a group or over the phone. All participants declined to meet as a group and so were sent information by post. They were contacted by phone initially on receipt of the analysis to talk it through with them and then telephoned again after one or two weeks to provide their feedback. Participants generally reported agreeing with the analysis which might have reflected a desire to please the researcher (Goldblatt et al., 2011). However, they did also provide some specific feedback. The main suggestion related to making the interconnections between themes clearer. Specifically, adding arrows to the diagram of the overall themes to show that these represent differing levels of distress and coping ability. One participant suggested emphasising the positive aspects of accepting what can’t be controlled because this could be mistaken for the more negative aspects of giving up and feeling defeated.

It was also suggested that emphasis should be placed on individual differences and that some people are struggling more than others. This participant agreed with the suggestion of adding vertical double-headed arrows to the diagram as he felt that this may help to show different levels of severity.

This feedback was incorporated in to the results.

**3.2.4 Strengths and limitations**

It was a strength of this design that a member check was conducted. This confirmed the validity of the analysis with the participants themselves. A further strength is that the researcher completed the transcribing of all the interviews as well as the analysis, allowing for full immersion in the data (Strauss and Corbin, 1998).

Although there are qualitative studies of coping with psychosis (e.g. McNally and Goldberg, 1997), as far as we are aware there are no other qualitative studies on the use of safety seeking behaviours in psychosis. This study therefore addressed an important gap in the literature.
Weaknesses of the study include that inter-rater reliability was not used to determine the validity of the analysis. However, this approach does not necessarily eliminate subjectivity in qualitative research (Yardley, 2000). A small sample size was used which may limit the generalisability of the results. This is a general criticism of qualitative approaches. However, the small sample is not seen as a weakness here as it allowed for in depth study of the interviews and a rich analysis to be produced.

3.3 Quantitative methodology
The remaining three studies that are included in this thesis employ quantitative methodologies. Study two describes the development and initial validation of a new questionnaire, The Measure of Common Responses to Unusual Experiences (MCR) using cross-sectional data. Study three uses structural equation modelling to look at relationships between the MCR and other components of the cognitive model of psychosis and also uses cross-sectional data. Finally, study four uses experimental methodology to manipulate response styles to an ambiguous auditory recording. As studies two and three make use of data obtained from a separate clinical trial (The FOCUS Trial), this will first be described in detail.

3.3.1 The FOCUS Trial
The Focussing on Clozapine Unresponsive Symptoms (FOCUS) Trial is a randomised controlled trial looking at the efficacy of CBT for people with a diagnosis of schizophrenia who have not benefited from taking clozapine. FOCUS was funded by the National Institute for Health Research (NIHR) following a call by the Health Technology Assessment (HTA) programme for improved treatment options for this population. FOCUS is a four year trial being conducted across five sites in the United Kingdom: Manchester, Southampton, Newcastle, Edinburgh and Glasgow.

The rate of recovery and remission over the two year period from when antipsychotic medication is commenced has been found to be low (Lambert et al., 2008). Clozapine has been found to be the most effective treatment for people with a diagnosis of schizophrenia who have not responded to other antipsychotics, however, treatment response is still low (Chakos et al., 2001). Clozapine is also associated with a range of unpleasant and
dangerous side effects (Lieberman, 2004), meaning that other treatment options are required. There is preliminary evidence that CBT can be effective for people considered to be experiencing clozapine-resistant schizophrenia (de Paiva Barretto et al., 2009). Due to the small number of participants involved in this trial (22), a larger scale trial with longer follow up was warranted.

The FOCUS trial was approved by the NRES Committee Northwest-Lancaster (12/NW/0520). Ethical approval was granted on 13th August 2012. It is also registered on the International Standard Randomised Controlled Trial Number (ISRCTN) clinical trial registry (reference: ISRCTN99672552). The trial was registered on 29th November 2012 prior to starting recruitment in January 2013.

Participants were randomly allocated to either treatment as usual (TAU) or TAU plus up to nine months of CBT with an experienced therapist. This could involve up to thirty sessions of CBT which, where possible, was conducted in the participant’s own home or somewhere they felt comfortable. Research assistants conducted baseline assessments to determine eligibility and then further assessments at nine months and twenty-one months. These assessments were conducted blind, meaning that the research assistant was unaware of the participant’s allocation either to TAU or TAU plus CBT. Blinded assessments are conducted in order to minimise bias in clinical trials (Juni et al., 2001). In between follow up visits, the research assistants kept in contact with participants via phone calls and sending thank you cards in the post.

As studies two and three relate only to baseline data for the FOCUS Trial, the remaining description of the FOCUS Trial methodology will relate to baseline assessment only.

**3.3.1.1 FOCUS participants**

A total of 487 participants were recruited across the five sites. This exceeded the recruitment target of 485 and makes FOCUS the largest trial of CBT for psychosis ever conducted. This author was the research assistant at the Manchester site, which recruited 108 of the total participants. Participants were recruited from a range of services including CMHTs, EITs, Recovery teams and inpatient services. Due to the requirement that individuals taking clozapine must attend for a monthly blood test, attending clozapine blood
clinics was an important recruitment strategy. Although the research assistants could not approach service users directly due to ethical considerations, the nursing staff could explain the study to the client and see if they would like to speak to members of the research team for more information.

Participants were eligible to take part in FOCUS if they were considered to have had an inadequate response to clozapine, specifically treatment of clozapine at a stable dose of 400mg or more (unless limited by tolerability) for at least twelve weeks, or if currently augmented with a second antipsychotic that this had been given for at least twelve weeks, without remission of psychotic symptoms. Alternatively participants could have discontinued clozapine in the past two years.

This criterion was selected as a review of medication trials found 400mg to be the minimum dose necessary for effective treatment with clozapine (Davis and Chen, 2004). Other clinical trials looking at clozapine resistant schizophrenia have also employed the same criteria (Honer et al., 2006).

Participants were also required to have been given an International Statistical Classification of Diseases and Related Health Problems, tenth revision (ICD-10) diagnosis on the schizophrenia spectrum or to meet criteria for an Early Intervention in psychosis service.

Participants were required to score a minimum total score of 58 on the Positive and Negative Syndrome Scale (PANSS) as well as 4 or more for either delusions or hallucinations or 5 or more for suspiciousness or grandiosity. This was assessed by the research assistant at the baseline assessment. Participants had to be aged sixteen or above, have an identified care coordinator or consultant psychiatrist and had not received CBT in the past 12 months. Exclusion criteria were a primary diagnosis of substance or alcohol dependence, diagnosis of developmental disability, organic impairment and non-English speaking.
At the Manchester site, a total of 248 referrals were received. 89 declined, 42 were not eligible and 108 were randomised. 9 people were in the process of being contacted or were on hold when the recruitment window closed. Participants may have been on hold due to commencing a new antipsychotic, being currently out of the area or due to personal reasons which led them to ask the researcher to call them back after a few weeks. Of the 108 referrals, 78 came from a CMHT, 5 from EI services, 1 from an Assertive Outreach Team (AOT) and 24 from services classed as other, which may have included recovery teams or inpatient services.

The demographics of the FOCUS participants are presented fully in studies two and three. In brief, the average age of the sample was 42.47; the majority were male (71.66%) and White British (86.45%). Nearly half the sample had a diagnosis of schizophrenia (49.49%). The other predominant diagnoses were paranoid schizophrenia (38.19%) and schizoaffective disorder (9.86%).

It has previously been reported that males have a poorer treatment outcome than females (e.g. Moriarty et al., 2001) and so this could explain the dominance of male participants in FOCUS. Other studies of treatment resistant schizophrenia have also reported a similar proportion of male participants. For example, Chakos et al (2001) reported 76% and Honer et al (2006) 74%. The dominance of White British participants is more concerning as it is thought that a diagnosis of schizophrenia might be more common in Black and minority Ethnic groups (Fearon et al., 2006), suggesting the FOCUS sample may not be representative of the general population. This may suggest that minority groups are not accessing services or are not as willing to take part in research.

3.3.1.2 FOCUS measures

The Positive and Negative Syndrome Scale (The PANSS, Kay et al., 1987) is a semi-structured interview consisting of thirty items intended to assess the severity of symptoms associated with psychosis. Seven items assess positive symptoms such as hallucinations and delusions, seven items assess negative symptoms such as blunted affect and emotional withdrawal and 16 items assess general psychopathology such as anxiety and depression.
All items are scored between 1 (absent) and 7 (extreme). The PANSS is considered to be a reliable and valid measure (Kay et al., 1988). More recently, it has been suggested that a five factor structure is better able to capture the experiences of people with a diagnosis of schizophrenia (Lancon et al., 2000). These are negative, positive, excitation, depression and cognitive. The depression subscale is used in study three and includes depression, anxiety and feelings of guilt (Lancon et al., 2000). The PANSS can be seen in Appendix Four.

*The Psychotic Symptom Rating Scale* (The PSYRATS, Haddock et al., 1999) is a semi-structured interview consisting of 12 items assessing aspects of voice hearing such as frequency, volume, distress and disruption caused, and six items assessing aspects of unusual beliefs such as preoccupation, distress and disruption. All items are scored from 0 to 4, with higher scores indicating greater severity. The unusual beliefs section includes the subscales cognitive and emotional while the voices section also includes these two subscales as well as a physical subscale. This is used in study three and includes frequency, duration, location and loudness of voices (Haddock et al., 1999). The PSYRATS can be seen in Appendix Five.

*The Anxious Thoughts Inventory* (The AnTI, Wells, 1994) is a 22 item self-report questionnaire designed to measure aspects of worry. Each question is scored from 1 (almost never) to 4 (almost always). The measure has a three factor structure comprising of social worry, health worry and meta-worry. The 7 item meta-worry scale only was included in The FOCUS Trial. This sub scale includes questions such as “I worry that I cannot control my thoughts as well as I would like to”. This can be seen in Appendix Six.

*The Calgary Depression Scale for Schizophrenia* (CDSS, Addington et al., 1992) is a structured interview measure with nine items. The items include assessment of hopelessness, feelings of guilt and suicidal ideation. For each section the assessor can score the client between a score of 0 (absent) and 3 (severe). Therefore, possible scores
range from 0 to 27. The measure was incorporated in to the PANSS interview during the assessment of depression and can be seen in Appendix Seven.

_The Brief Core Schema Scale (BCSS, Fowler et al., 2006)_ is a 24 item measure assessing beliefs about self and others. It consists of four subscales, positive beliefs about self, negative beliefs about self, positive beliefs about others and negative beliefs about others. Participants’ respond to a yes or no question about whether they endorse each belief and then, if it is a yes, they state how much they believe this using a scale from 1 (believe it slightly) to 4 (believe it totally). The BCSS can be seen in Appendix Eight.

_The Measure of Common Responses to Unusual Experiences (MCR)_ was developed by the authors. The development and validation of the MCR will be described in detail below and in study two. In brief, questions relate to response styles used when distressed such as “I avoid doing certain things or going to certain places”. Participants were asked to rate how frequently they used each response using a scale ranging from 1 (never) to 4 (almost always). The MCR has three subscales; threat monitoring and avoidance, social control and reassurance seeking, and conscious self-regulation attempts (see Appendix Nine).

Several other measures were also included in the FOCUS data set but as these were not included in the current studies, they are not described here.

### 3.3.1.3 FOCUS procedure

As described above, potential participants were initially approached about the study by a member of their care team, as per ethical requirements. Once the individual gave verbal consent to be contacted by a member of the research team then the researcher would make contact by phone. The study would briefly be described and a PIS sent out in the post. See Appendix Ten for the FOCUS PIS. Again, the individual would be given a minimum of twenty-four hours to consider the information. The researcher would then arrange to meet the participant at a place of their choosing, in the majority of cases this was their own home. Some preferred to meet within a mental health service or, if there were any possible risk issues, a meeting within service would also be arranged. Participants who were currently
inpatients were visited on the ward. The researcher would talk through the PIS with the individual and ensure that the information was understood by asking them to reflect it back to them. Only when both the researcher and the participant were satisfied that all the information about the trial had been provided and understood would the client be asked to sign the consent form. The researcher would read through each point and the participant would place their initials in the boxes provided if they agreed to the information. Both researcher and participant signed their names underneath. See Appendix Eleven for the FOCUS consent form.

The researcher would then commence the baseline assessment. In the majority of cases this was spread across two visits at the participant's preference. On average, to complete all assessment measures in full would take approximately two hours. The assessment would begin with the PANSS interview and then move on to the self-report measures, which are outlined above. The participant would also be provided with a personalised crisis card at the baseline assessment. This included contact details for their care team and GP as well as other helpline numbers, such as the Samaritans. Finally, participants would be paid £10 for their time.

Following baseline assessment and ensuring that the participant was eligible, as determined by the PANSS score, they could then be randomised. This was conducted using the software OpenCDMS (Clinical Data Management System). On entering the participant's details and PANSS score in to the system, they were randomly allocated in to an arm of the trial. The details of this would then be sent by email to trial staff. The researcher would not be informed of the allocation but would receive notification that randomisation had been successfully achieved.

The participant, their care coordinator and GP were sent a letter including a copy of the consent form and details of their allocation.

3.3.2 Study Two: questionnaire development and validation

Questionnaire measures are widely used in clinical trials and healthcare research (Keszei et al., 2010). They allow for the collection of information on a large scale and in a standardised format (Rattray and Jones, 2007). They can also be quick and relatively low-cost to
administer (Bowling, 2014). For a questionnaire tool to be able to contribute effectively to research it must have been carefully developed and demonstrated to be both reliable and valid (Rattray and Jones, 2007). The following section will describe the development and validation process of The Measure of Common Responses to Unusual Experiences as used in studies two and three presented here.

### 3.3.2.1 Item generation

The wording, order and layout of items on a questionnaire can be important and impact on the reliability of respondents answers (Bowling, 2014).

It is advised to ensure that wording is simple and likely to be interpreted by all respondents in the same way (Bowling, 2014). Questions should not contain double negatives or two questions in one (Bowling, 2014). It is advised that questions are devised with reference to the existing literature and through consultation with specialists in the field of interest (Bowling, 2014; Rattray and Jones, 2007). This process was followed here. The objective was to develop a questionnaire to measure the way that individuals with psychosis respond to their distressing unusual experiences, with an emphasis on safety seeking behaviours. Key research within this field was reviewed. For example, the work of Salkovskis (1991), Freeman et al (2001; 2007) and Hacker et al (2008). It was found that an interview based measure already existed to assess safety seeking behaviours in response to beliefs about persecution (Freeman et al., 2001) and so this measure was reviewed. This covers the areas of avoidance, in-situation safety behaviours, escape, compliance with persecutor’s, help-seeking, aggression and delusional actions (Freeman et al., 2001). Measures available in the anxiety literature were also considered such as the Thought Control Questionnaire (TCQ, Wells and Davies, 1994), The Fear Questionnaire (Marks and Mathews, 1979) and measures of health anxiety, panic and social phobia (Wells, 1997). It was found that these measures covered similar themes as well as distraction, relaxation and cognitive strategies. Therefore, it was felt that these areas would be important to include.

From this initial research and also by drawing on clinical experience in the area, such as PANSS assessments the researcher had been conducting for a separate clinical trial, a large item pool was developed. These were refined and developed through supervision with
the main supervisor, an experienced Clinical Psychologist. Instructions for completing the measure were also developed in supervision.

Experts in the field were then consulted. The researcher attended a meeting of the Psychosis Research Unit (PRU) Service User Reference Group (SURG). They were asked for their feedback on which items should be included in the measure, the wording and order of the items and also the wording of the instructions for completion. The SURG provided several suggestions for amending the measure.

Firstly, in terms of the questionnaire instructions, it was suggested to emphasise that the participant should answer in relation to experiences that have caused them distress. “We are interested in the ways that you typically respond to your experiences” was changed to “Although people are not always distressed by these experiences, we are interested in the ways that you typically respond to your experiences when you are distressed”. Further, “when I am distressed…” was added to the top of the list of responses to remind the participant to answer the questions in relation to this. A statement relating to confidentiality of responses was also added to the instructions.

Specific wording to some of the questions was also amended. For example, “I ask for help from friends, professionals or the police” became “I ask for help from friends or professionals”. “I focus on myself and monitor my behaviour” became “I focus on myself and my behaviour” and “I accept my experiences as a normal part of who I am” became “I accept my experiences as a part of who I am”.

Several items were removed from the measure including “I read a lot and try to increase my knowledge”, “I sleep a lot during the day” and “I talk to myself and reassure myself”.

Finally, it was suggested that a free text box was added so that participants would be able to describe their own individual experiences they were thinking of as they completed the questionnaire and any other response styles they used that the measure had not covered.

Two Professors of Clinical Psychology and two Professors of Psychiatry were finally consulted about the measure. Again, specific items were re-worded. This related to clarifying items that did not clearly relate to responses to unusual experiences. For example
“I think about what I have done to deserve this” was changed to “I think about what I have done to deserve my unusual experiences”. Ways to make questions clearer to avoid respondents interpreting them in different ways were also discussed. “I test out my fears” was changed to “I test out my fears about my unusual experiences by changing the way I respond”.

One further item was removed due to the possibility of conceptual difficulties with it. This was “I deliberately worry about my experiences”.

The final measure consisted of thirty-one items. It was felt that this was the maximum number of questions that could be used as a greater number of items than this would have resulted in the measure spanning over more than two sides of A4 paper.

It was decided to use a simple, four-point Likert scale for quick and easy responding (Bowling, 2014). This type of scale is commonly used in psychological and health research (Bowling, 2014), for example, on measures such as the Interpretation of Voices Inventory (IVI, Morrison et al., 2002), Beliefs About Paranoia Scale (BAPS, Morrison et al., 2005), The TCQ (Wells and Davies, 1994) and The AnTI (Wells, 1994). Exclusion of a middle response prevents participants from simply selecting this option for every question (Bowling, 2014).

The Measure of Common Responses to Unusual Experiences was then included in the FOCUS data set as described above. The measure can be seen in Appendix Nine. Data was available for each question from a minimum of 423 to a maximum of 437 participants. Therefore, the minimum response rate was 86.86%.

3.3.2.2 Validity

Principal components analysis (PCA) is an exploratory technique used to reduce the number of items on a scale whilst keeping as much of the initial variance as possible (Worthington and Whittaker, 2006). It is a similar technique to exploratory factor analysis and some use the terms interchangeably, although there are differences between them (Kline, 1994). Where factor analysis aims to provide an estimate of the latent variables a measure is composed of, PCA simply breaks the data down into a set of linear components (Worthington and Whittaker, 2006). Many authors recommend the use of exploratory factor
analysis over PCA in questionnaire development (e.g. Costello and Osborne, 2005; Worthington and Whittaker, 2006). It has been suggested that use of PCA can lead to over estimation of variance accounted for and item loadings (Costello and Osborne, 2005). However, Velicer and Jackson (1990) argue that this implies that the item loadings estimated using factor analysis are correct, which may not be the case. From their review of the literature, Velicer and Jackson (1990) conclude that the variations observed in item loadings are small and would not result in different interpretations of the data being produced. Therefore, choosing to use either PCA or factor analysis will not greatly influence the results obtained. It is suggested that it is other decisions that are more important, such as deciding how many components to retain or which type of rotation to use (Velicer and Jackson, 1990). PCA was the method used here as it has commonly been used in the development of other psychological measures (e.g. The IVI, The TCQ).

Data from the 487 FOCUS participants described above was entered in to International Business Machines Statistical Package for the Social Sciences (IBM SPSS) version 22. A large sample is required for PCA (Worthington and Whittaker, 2006). A commonly used convention for determining the sample size required is a ratio of ten participants to each variable. As The MCR has a total of 31 variables, 310 participants would be necessary. The FOCUS data was, therefore, more than sufficient for this. However, the decision was made to split the sample so that data from different participants would be used at the exploratory and confirmatory phases (Hair et al., 2014). Data from 287 participants was selected randomly from the overall sample for the PCA analysis. This was, therefore, slightly less than a ratio of 10:1 at 9.26:1. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was also calculated and indicated that the sample size was adequate for conducting a PCA (KMO = 0.835). Kaiser (1974) suggests that values of 0.8 or higher are “meritorious” (p. 35) and should result in reliable components.

An initial stage in conducting a PCA is to check the variables are sufficiently inter-correlated to ensure that there are relationships amongst variables and, therefore, conducting a PCA is reasonable (Kline, 1994). To determine this, Bartlett’s test was used. If this test is significant then this suggests that there are significant correlations between variables.
Bartlett's test was found to be significant in relation to this data and the correlation matrix also showed that many of the variables were significantly correlated and that the correlations were not too high, which may have indicated a problem of multicollinearity (Field, 2009).

All 31 items were included in the initial, unrotated solution. A decision must then be made regarding how many components to extract. One method for determining this is to retain all components with an eigenvalue of greater than 1 (Kaiser, 1960). The eigenvalue relates to the degree of variance a component can explain. However, it is thought that this procedure can overestimate the number of components that should be extracted (Costello and Osborne, 2005). In the case of the data presented here, use of this criterion would have resulted in 9 components being retained and the solution would have been difficult to interpret. Some, therefore, recommend the use of the scree test over Kaiser’s criteria (Costello and Osborne, 2005). To do this, a scree plot of eigenvalues is analysed to determine the point at which the plot levels off, indicating the remaining eigenvalues are smaller and more similar in size (Worthington and Whittaker, 2006). A problem with this process is that the scree plot can be difficult to interpret. Some suggest including the component at the break point on the plot (Cattell, 1966) while others propose retaining only the components above the break point (Costello and Osborne, 2005). Using these approaches would have resulted in retaining either 4 or 3 components respectively.

Due to these differences in interpretation, it was decided to conduct a parallel analysis as this is considered a highly accurate technique for determining the number of components to retain (Costello and Osborne, 2005). This analysis was conducted using syntax written for SPSS as described by O’Connor (2000). This procedure produces eigenvalues calculated from randomly generated data sets (O’Connor, 2000). Eigenvalues from the 95th percentile of the randomly generated data can then be compared to the actual eigenvalues within the data. Where the actual eigenvalue is greater than the randomly generated eigenvalue, it is retained (O’Connor, 2000). This approach confirmed that three components reached significance.

The PCA was then performed again, this time extracting the three components and applying a rotation to improve interpretability (Costello and Osborne, 2005). There are two categories
of rotation techniques available, these are orthogonal and oblique. Orthogonal rotations are used where it is expected that components will not be correlated whereas oblique rotations allow for correlations between components (Costello and Osborne, 2005). As in psychological sciences relationships between variables are expected; an oblique rotation (direct oblimin) was used here. This decision was also made as use of an orthogonal rotation where factors are in fact correlated, results in loss of information but the same is not true if an oblique rotation is used with uncorrelated factors, the same solution will still be produced (Costello and Osborne, 2005).

Items were considered to load on to a component if the loading was greater than 0.4. Where items did not load at above 0.4 on any of the components or loaded at above 0.4 on two components without a difference of 0.2 between them, these items were removed and the analysis was re-run until a clean result was achieved. The first analysis resulted in the removal of three cross-loading items and seven items that did not load on to any component. These were “I try not to think about my unusual experiences”, “I do what I am told to do to avoid threat”, “I go over and over my experiences in my mind to try and make sense of what is happening”, “I do things to distract myself such as trying to keep busy or listening to music”, “I do not tell anyone about my experiences”, “I accept my experiences as a part of who I am”, “I try to make sure I’m prepared in case something happens”, “I take medication”, “I drink alcohol or use drugs” and “I pray or go to a place of worship”. Removing these ten items and performing the analysis again resulted in one cross loading item and one item that did not load on to any component. These were “I try to ignore my unusual experiences” and “I make sure I am safe at home by checking for threats or locking the door”. Removal of these items resulted in a clean three component solution being achieved. The first two components contained seven items each and the third component contained five items. The components were further reduced to include five items each during the reliability analysis, as will be discussed below.

The labels for each component were determined through discussion in supervision of the meaning of the highest loading items on each component (Kline, 1994). The first was labelled conscious self-regulation attempts and included items such as “I try to think about
my experiences in a different way or look for evidence”. The second was threat monitoring and avoidance, for example, “I have to leave a situation in a hurry or run away”. The third component was labelled as social control and reassurance seeking and included “I talk to someone about my problems”.

Confirmatory Factor Analysis (CFA) was then used to check the validity of the three component solution (Worthington and Whittaker, 2006). The correlated three component solution was modelled using Analysis of Moment Structures (AMOS) version 22. It is thought that if a good fit of the model is found in a different sample, this supports the reliability of the component structure identified at the exploratory stage (Worthington and Whittaker, 2006). A large sample size is again required for CFA, with some suggesting that 100 may be enough but the larger the sample the better (Kline, 1994). Here, the data from the remaining 200 participants from the FOCUS data set was used. Therefore, this was a different sample to the sample the PCA was performed on and should have been sufficiently large enough to conduct CFA.

The three latent variables were created in AMOS, each with five observed variables to represent it. The latent variables were correlated. The paths between the latent variables and their indicator variables should be significant to indicate construct validity (Hair et al., 2014). This was found to be the case. Further, the standardised loadings should be above at least 0.5 (Hair et al., 2014). The standardised regression weights found here were between 0.33 and 0.77, with five of them falling below 0.5 (0.33 – 0.47). This may suggest that some item modification is required in future work.

AMOS provides many indicators of the fit of the model in the output (Hair et al., 2014). The first is the overall Chi-square ($\chi^2$) of the model, or how well the theory matches the data (Hair et al., 2014). A well-fitting model has an overall lower Chi-square value and is not significant, indicating that there is no significant differences between the hypothetical and actual models (Hair et al., 2014). However, the Chi-square value is influenced by sample size and is rarely non-significant in samples over 200 (Hoe, 2008). For this reason, the normed Chi-square can be considered. This is the Chi-square divided by the degrees of freedom in the model (Hair et al., 2014). Values below 5 are acceptable while values below
2 are considered excellent (Hair et al., 2014). In addition to this, it is recommended that at least one absolute fit index and one incremental fit index is also considered (Hair et al., 2014). The Chi-square statistic is one example of an absolute fit indices as these assess how well the model fits the data (Hair et al., 2014). Other Absolute fit indices are the Goodness-Of-Fit Index (GFI) which is also less affected by the size of the sample (Hair et al., 2014). To indicate a good fit, values should be above 0.9, with some suggesting that above 0.95 is ideal (Hair et al., 2014). The Root Mean Square Error of Approximation (RMSEA) is a commonly used absolute fit index. This index corrects for both size of the sample and the level of complexity in the model and, as such, model fit can be generalised from the sample to the population of interest (Hair et al., 2014). Values below 0.08 are considered acceptable with a lower value representing a better fit. The Standardised Root Mean Residual (SRMR) is a measure of the overall error in the model. Again, lower values are indicative of better fit and it is suggested values of SRMR should be below 0.1 (Hair et al., 2014) or even 0.08 (Hu and Bentler, 1999). All of the above fit indices were considered in study two.

In contrast, incremental fit indices assess how well the specified model fits in comparison with an alternative model (Hair et al., 2014). The Normed Fit Index (NFI) is an example of this as it calculates a ratio of difference between the observed and alternative model Chi-square values (Hair et al., 2014). Values range between 0 and 1, with figures closer to 1 indicating better fit. It is not commonly used in practice currently due to the fact that complexity of the model can inflate the value (Hair et al., 2014). The Tucker Lewis Index (TLI) accounts for this issue by comparing the normed Chi-square values of the observed and alternative models (Hair et al., 2014). Again, values closer to 1 indicate a better fit (Hair et al., 2014) with some saying that 0.9 should be used as a cut-off (Hoe, 2008). The Comparative Fit Index (CFI) is similar to the previous two indices but is normed, meaning values cannot exceed 1 (Hair et al., 2014). Values above 0.9 can be interpreted as a good fit. The latter two indices were used in study two.

To check for misspecification in the model, the modification indices were viewed (Byrne, 2016). The modification indices provide information regarding how much the Chi-square
would be reduced should a parameter be allowed to be freely estimated in the analysis (Byrne, 2016). The modification indices representing cross-loading regression weights and error covariances are important to check. Modification index values of less than 10 are unlikely to significantly change the model (Byrne, 2016). All cross-loading regression weights were found here to be low (4.018 – 5.447) and therefore were not thought to represent a problem with the model. The modification indices provided for the error covariances can signal systematic error in measurement, for example, similarly worded items (Byrne, 2016). One modification index value for the error covariances was found to be above 10. However, these error terms were not on the same factor and so it would not have made theoretical sense to allow them to correlate. Two modifications were suggested for error terms within the same factor. Although these were low (6.231 and 4.068) it was decided to modify the model due to the fact that these error terms represented similar items within the subscales (for example, I ask for help from friends or professionals and I try to tell as many people as possible about what is happening) or perhaps items that were not clear enough (I focus on myself and my behaviour and I try to think about my experiences in a different way or look for evidence). Although applying modifications to the model means that the analysis has become more exploratory rather than confirmatory (Byrne, 2016), due to the fact that the fit indices provided some evidence of model misspecification, it was decided to add the modifications.

Construct validity tests the assumption that the questionnaire does measure the construct it was designed to measure (Bowling, 2014). One approach to assess construct validity is convergent validity. The measure is correlated with existing validated measures of similar concepts or concepts that are theoretically expected to be related (Bowling, 2014). An existing measure of coping would have been a helpful check of convergent validity. However, this could not be included in the FOCUS data set due to ethical reasons of keeping the burden of the assessment procedure as low as possible for participants who may be vulnerable or distressed. Instead, predictions regarding possible associations were made based on the existing literature in this area. Based on the work of Freeman et al (2001) it was expected that the threat monitoring and avoidance subscale would relate to paranoia and anxiety. As they found in their study of participants with persecutory beliefs
that avoidance was the most commonly used safety seeking strategy and that this was associated with anxiety. Active social avoidance was also chosen as a similar concept to threat monitoring and avoidance, as this measures reduced social contact due to fear or distrust (Kay et al., 1987). Paranoia, anxiety and active social avoidance were all measured by the PANSS. The component relating to social control and reassurance seeking was predicted to be negatively associated with each of the social items measured by the PANSS. These are active social avoidance, passive or apathetic social withdrawal and emotional withdrawal. The latter two measure reduced social involvement due to apathy or avolition and a lack of interest in people and events in the surroundings (Kay et al., 1987). As the subscale of conscious self-regulation attempts related to deliberately trying to think about and control experiences, it was thought that this could relate to preoccupation with beliefs as measured by the PSYRATS, as this assesses the frequency and duration of thoughts about unusual beliefs. It was also expected to be related to the meta-worry scale of the AnTI, as this includes similar concepts relating to awareness of thoughts such as “I worry that I cannot control my thoughts as well as I would like to” (Wells, 1994). Pearson’s correlations were conducted between the subscales of the MCR and each measure described above using data from the full set of 487 participants.

Correlations were also conducted between each subscale and delusions, hallucinations, anxiety and depression as measured by the PANSS, as well as the PANSS total score. This was so that the relationship between response styles and symptoms could be examined.

3.3.2.3 Reliability
Reliability of a questionnaire relates to how consistent it is in its measurement and the degree of random error it produces (Bowling, 2014). Cronbach’s alpha is a commonly used method of checking for reliability (Tavakol and Dennick, 2011). It is a measure of internal consistency and so describes the degree to which all items are measuring the same underlying concept (Tavakol and Dennick, 2011). The value of alpha is the average of all possible combinations of split-half correlation coefficients (Cronbach, 1951). The value produced is therefore between 0 and 1 (Tavakol and Dennick, 2011) with values above 0.7 considered acceptable (Nunnally, 1978). However, the value should not be too close to 1 as
this may indicate that the items are too similar (Tavakol and Dennick, 2011). Lower alphas are also acceptable where scales are shorter as the value of alpha is affected by scale length (Streiner, 2003).

A value of alpha was calculated for each subscale of the MCR as it was assumed that each scale was measuring a different underlying concept (Tavakol and Dennick, 2011). Also, a larger number of items can inflate the value of alpha and overestimate internal consistency (Tavakol and Dennick, 2011). A value for Cronbach’s alpha if any item on the scale was deleted was also computed. No single item should exert great influence on the overall alpha if the scale is reliable. If an item is found to be decreasing the value of alpha, then this item should be dropped from the measure (Bowling, 2014). When items are dropped, the factor analysis should be re-run to ensure that this has not affected the factor structure. Therefore, as it was found here that one item on the conscious self-regulation attempts scale (“I try to think positive thoughts or tell myself it will be ok”) reduced the alpha from 0.752 to 0.750, this item was removed.

As the shortest subscale had five items, it was decided to create subscales of equal length by removing the lowest loading items from the other two subscales. This was “I test out my fears by changing the way I respond” from the conscious self-regulation attempts subscale and “I get angry or aggressive towards myself or others” and “I try not to attract attention to myself” from the threat monitoring and avoidance subscale. The values of alpha found in study two even with the short subscales used are all above 0.7, indicating good internal consistency. No single item was found to be reducing the value of alpha. Running the PCA with the final 15 items demonstrated that the solution was not affected.

A further method of checking reliability is test-retest reliability. If a measure is reliable then participants’ scores should remain the same when completing the measure at different times (Bowling, 2014). As above, values can be between 0 and 1, with values closer to 1 indicating greater reliability. Values over 0.7 are considered acceptable (Keszei et al., 2010). The period of time for test-retest reliability is generally between ten days and two weeks (Keszei et al., 2010). Longer time frames are also used, for example, four weeks (e.g. The Bipolar Recovery Questionnaire, Jones et al., 2013) and six weeks (e.g. The IVI,
The TCQ). The period of time used in study three was significantly longer than this as test-retest reliability was calculated over a nine month window. This period of time was selected as it was thought that participants in the FOCUS Trial represent a chronic and stable population and, therefore, participants in the TAU arm of the trial were likely to remain stable over the nine month window. Participants in the CBT plus TAU arm of the trial were receiving an intervention over this time period and so were excluded from the analysis. Due to the researcher being blind to treatment allocation, this analysis was conducted by an independent statistician. Intraclass correlation coefficients were calculated with confidence intervals.

### 3.3.2.4 Strengths and limitations

Limitations relating to the questionnaire design include the presentation of the measure. The four response options were not repeated on the second sheet, making it difficult for participants to complete. This is not recommended (Bowling, 2014). It is possible that the four options were also too vague. It is advisable to use specific time periods where possible (Bowling, 2014). A scale could have been devised similar to the frequency scale as used on the PSYRATS where the options are once a week, daily, every hour or continually (Haddock et al., 1999). It is a further weakness that a validated coping measure was not available for determining convergent validity. This would have allowed for comparison of the measure with similar constructs.

The sample used here was taken from a specific population, meaning that it may not be possible to draw generalisations from these findings. Further validation is required in a different sample, such as first episode clients.

Finally, there was some evidence of model misspecification as not all fit indices from the CFA indicated a good fit. Therefore, some further developmental work may be required.

However, strengths of the design include that the data was taken from a large clinical sample and separate samples were used for the PCA and CFA.
3.3.3 Study Three: structural equation modelling

The aim of study three was to explore how response styles might fit within a cognitive and metacognitive framework of psychosis. Structural Equation Modelling (SEM) was chosen as the most appropriate methodology for addressing this aim. SEM is used to test hypotheses relating to causal associations between variables (Byrne, 2016). A model is created to represent the theory under investigation and then this model can be analysed simultaneously to determine how well the observed data fits the theory or model (Byrne, 2016). Although SEM is a complex approach, it has advantages over other possible methodology, such as regression. One of these advantages is that within an SEM model, error associated with each observed variable and each endogenous latent variable, is included in the model (Byrne, 2016). This makes the estimates produced by SEM more accurate (Hair et al., 2014). It is also important to note, that both observed and latent variables can be included in the model, unlike other approaches (Byrne, 2016).

Latent variables are concepts that cannot be directly measured. Therefore, in SEM, latent variables are created by combining observed variables that are thought to be able to represent them (Byrne, 2016). In SEM, independent variables are referred to as exogenous and dependent variables as endogenous (Byrne, 2016).

3.3.3.1 Using AMOS

AMOS version 22 was used here for performing SEM. This programme allows the model to be depicted graphically to simplify interpretation (Byrne, 2016). Each class of variable is represented by a different shape in the diagram. Latent variables are represented with ellipses, whereas observed variables are shown as rectangles (Byrne, 2016). Arrows are also used. Single headed arrows illustrate regression paths, whilst double headed arrows represent correlations (Byrne, 2016). Error terms, as they are also classed as unobserved variables, are also represented as a circle or ellipse (Byrne, 2016).

SEM differs from the CFA discussed previously in that it examines relationships between latent variables. The CFA model created in AMOS in study two was a measurement model only as it was only concerned with relationships between the latent variable and the observed variables that were thought to relate to it. The SEM model in contrast contains
measurement models such as this, but is also a structural model due to analysing causal
relations between unobserved variables (Byrne, 2016).

AMOS will automatically fix one regression weight between each latent variable and the
observed variables it is composed of to a value of 1. Weights between error terms and
observed variables are also set to 1. The rest of the parameters in the model such as the
remaining regression weights, correlations and factor variances will be estimated when the
analysis is run (Byrne, 2016). If one unique solution can be obtained on the basis of the
model created, then the model is said to be identified (Byrne, 2016). The model must be
over-identified with more data points than parameters to be estimated in order for a model to
be properly tested and, if necessary, rejected (Byrne, 2016). Where a model is under-
identified, there are more parameters to be estimated than data points available and a
solution cannot be determined (Byrne, 2016).

3.3.3.2 Model specification

The model was developed based on existing theoretical knowledge (Hair et al., 2014).
Within an integrated cognitive and metacognitive model of voice hearing, important
components are the experience of hearing a voice, the appraisal of this experience, the
response to it and the distress caused (Morrison, 2001). Therefore, measurement models
were specified for each of these components. The voice hearing latent variable was created
using aspects of the PSYRATS relating to frequency, duration, location and loudness of the
voice. These variables were chosen as opposed to other variables in order to minimise the
overlap between the concepts included in the model. For example, the PANSS hallucination
item takes into consideration the distress caused by voices and beliefs about voices and so
would have caused confound with the distress and appraisal elements of the model.
Responses to voices were specified using the three MCR subscales identified in study two.
Distress was represented by the PANSS anxiety and depression subscale and the total
CDSS score. Similarly, the emotion subscale of the PSYRATS was not used as this would
have caused confound with voice hearing. A combined cognitive and metacognitive
appraisal latent variable was created using the total BCSS score and the AnTI meta-worry
score. An integrated model of voice hearing would predict that voice hearing experiences
would lead to appraisals which in turn would predict responses and distress (Morrison, 2001). As the role of responses within the model was the primary interest, it was decided to look at regression pathways between each of the other variables and responses as well as the relationship directly between voice hearing and distress, which would not be predicted by Morrison’s (2001) integrative model.

This model was tested initially in the full FOCUS sample and then a sensitivity analysis was conducted in voice hearers only.

In order to look more closely at the role of meta-worry and schemas in relation to responses and distress, a further mediation model was specified. Correlations were analysed between each of the MCR subscales and the anxiety and depression subscale of the PANSS and the CDSS total. It was found that social control and reassurance seeking and conscious self-regulation did not correlate with these but significant positive correlations were found with the threat monitoring and avoidance subscale. Therefore, this subscale only was used for the following analysis.

In order to test for mediation, initially a regression of the outcome on the independent variable is tested. Next, a regression of the mediating variable on the independent variable is tested and finally the outcome is regressed on both the independent and mediating variables (Baron and Kenny, 1986). Using AMOS the latter two steps can be conducted simultaneously. The pathway between the independent and outcome variable would be reduced to zero where a perfect mediation was present (Baron and Kenny, 1986). Critics argue that mediation should instead be judged by the strength of the indirect effect, as opposed to the reduction in direct effect. Therefore, these regression pathways will also be considered. A statistically significant indirect effect indicates that mediation is present. Bootstrapping with 2000 samples was conducted to estimate the standard error and 95% confidence interval for each analysis.

Therefore, model one tested the relationship between threat monitoring and avoidance and negative affect. Each mediator was then tested in turn. Model two added meta-worry as a mediator and model three replaced meta-worry with schematic beliefs as a mediator.
There are advantages to using SEM to conduct this analysis as opposed to regression. As previously mentioned, all pathways are tested simultaneously and measurement error is included in the model. Using regression, measurement error present in the mediator could result in reduced accuracy in determining the effect it has on the dependent variable (Baron and Kenny, 1986).

The FOCUS baseline data was utilised again for this study. Therefore, a total of 487 participants took part. As in all or most social science research, there was some missing data for each of the variables used, except for the PANSS data, which was available in full. In AMOS, certain output cannot be provided where there is missing values in the data, such as modification indices; therefore, missing data must be dealt with prior to analysis. One solution is to delete all cases that have any missing data, this is known as listwise deletion (Byrne, 2016). However, this approach is not recommended due to the resultant reduction in sample size (Byrne, 2016). An alternative approach is to replace missing data with an alternative value, commonly the mean (Byrne, 2016). This approach was used here although it also has disadvantages, such as the resultant reduction in variance of the variable and therefore the reduction in correlations with other variables (Byrne, 2016). A superior approach would have been to use a model-based solution. This allows for parameters to be estimated without any removal of cases or replacement of data values (Byrne, 2016). AMOS has the option of performing such estimations in the analysis however; modification indices cannot then be provided in the output. As this was an exploratory analysis, it was decided not to take this approach here.

3.3.3.3 Assessing model fit

As described above when discussing CFA, model fit should be assessed with several fit indices and should include both absolute and incremental fit indices (Hair et al., 2014). As before, both the Chi-square and adjusted Chi-square were considered as well as the GFI, RMSEA and SRMR, which are all absolute fit indices. In addition, the incremental fit indices TLI and CFI were also reviewed.

Modification indices were again considered and modified where required to improve model fit.
Finally, both direct and indirect regression weights between the latent variables were checked for significant relationships.

### 3.3.3.4 Strengths and limitations

It is a strength of this methodology that a large clinical sample was used. There were also many measures included in The FOCUS data set meaning that the latent variables could be specified using different constructs. There are advantages to doing this over using a single construct. There are also advantages to using SEM over other techniques as previously discussed, such as the inclusion of error terms in the model.

A limitation is that, as with study two, this data was taken from a specific client group and so findings may not be generalizable to other populations.

### 3.3.4 Study Four: experimental manipulation

The first two quantitative studies make use of cross-sectional data and so causal relations amongst variables cannot be easily determined. The advantages of experimental research designs are that they allow variables to be isolated and manipulated under controlled conditions so that causation can be investigated (Bowling, 2014). The final study was intended to achieve the aim of manipulating response styles to determine the impact of this on experience of psychosis and distress levels. Although safety seeking behaviours have frequently been manipulated in relation to anxiety disorders (e.g. Salkovskis et al., 1999), this is not an approach that has been taken in the psychosis literature, where research is mainly cross-sectional.

#### 3.3.4.1 Participants

A power calculation was conducted prior to recruitment for this study. Statistical power refers to the ability of a test to correctly reject the null hypothesis (Bowling, 2014). It is dependent upon the sample size, the probability level to be used and the estimated effect size (Bowling, 2014). The power calculation was conducted using the website sealed envelope. It was determined that 44 participants would be needed (22 in each group) to have a 90% chance of detecting, as significant at the 5% level, an increase of 10 points in the primary outcome.
Therefore, 44 participants were recruited. Participants were recruited who had already completed the FOCUS Trial and had consented to be contacted about future research. There were no additional inclusion or exclusion criteria. As participants were not going to be recruited from any other source, ethical approval was given as an add-on to The FOCUS Trial. This study was not part of The FOCUS Trial itself, it was designed by the researcher in collaboration with the supervisors, all materials were prepared by the researcher and the researcher conducted all the testing of participants.

Out of a possible 60 participants who had already completed the FOCUS Trial or completed during the recruitment window for this study, 9 declined to take part and 7 were unable to be contacted. Therefore 73.33% of possible participants agreed to take part.

The demographic characteristics of those who agreed to take part are detailed fully in study four.

### 3.3.4.2 Measures and materials

The following measures were used. The Beliefs about Voices Questionnaire (BAVQ-R, Chadwick et al., 2000, Appendix Twelve), The Thought Control Questionnaire (TCQ, Wells and Davies, 1994, Appendix Thirteen) and The Metacognitions Questionnaire (MCQ, Wells and Cartwright-Hatton, 2004, Appendix Fourteen). Visual Analogue Scales (VAS) were also used to rate anxiety (Appendix Fifteen) and distress (Appendix Sixteen). A full description of each of these measures is provided in study four.

After the first task, participants were asked to rate how much they had felt able to follow their instructions during the task. 0 was “I was not focusing on the words at all and stopped myself listening out for them” and 100 “I completely focused on the words and listened out for them” (see Appendix Seventeen). After the first audio task participants were asked to estimate how many words they thought they heard during the task whilst during the second audio task, they were asked to note down any words they heard (see Appendix Eighteen). The audio task will be described below.

**Audio task:** All participants listened to the same ambiguous auditory task. This was a recording of voices with randomly spliced one second sections played backwards as
described by Feelgood and Rantzen (1994). It has been found that use of this stimulus can cause participants scoring highly on a measure of susceptibility to hearing voices, to hear words and phrases in the tape when in fact none are present (Feelgood and Rantzen, 1994). The recording was five minutes in length and participants were asked to listen to it twice. Due to participants being tested in their own homes, the recording was played through a laptop. Feelgood and Rantzen (1994) counted words of more than one syllable or more than one word together to ensure that backwards single syllable words that sounded like real words were not being counted. Here, all words that were real words were counted, regardless of length. For example, many participants reported “eh”, which was not counted, but short words like “first” or “help” were. This was because many voice hearers report hearing short, single words, such as swear words, insults or being told no (e.g. Chadwick and Birchwood, 1994; Soppitt and Birchwood, 1997). Two very commonly heard words were “seriously” and “snow”. The decision was made to include these words as although they were heard frequently, they were not heard by everyone.

### 3.3.4.3 Procedure

The majority of the participants were tested in their own homes where they were living independently with the exception of four who were in supported housing. One participant was tested in service due to risk issues and two were currently inpatients and so seen on the ward. Safe visiting policies and procedures will be discussed at the end of this chapter.

The nature of the study was explained in detail. Participants then completed the three measures (BAVQ-R, TCQ, and MCQ-30) as well as the ratings of baseline anxiety and distress.

Collection of baseline measures is essential as this will be the reference point by which to assess the impact of the intervention (Bowling, 2014).

Randomisation of participants to groups is considered a central element of experimental procedure (Bowling, 2014). The advantage of randomisation is that the chance of bias arising due to differences between groups is reduced (Bowling, 2014). This increases the
likelihood that any differences observed between the two groups are as a result of the manipulation (Bowling, 2014). Participants here were, therefore, randomly allocated to an attentional avoidance group or an attentional focusing group. This was stratified by voice hearing by asking the participant if they had experienced voices over the past six weeks. Randomisation was conducted using opaque sealed envelopes with one set of envelopes for those participants who reported hearing voices and one set of envelopes for those who did not. In order to balance group sizes and also to ensure allocation concealment, permuted block randomisation was used. Some envelopes contained six randomisation slips and others eight; the researcher did not know how many were in each envelope and therefore was less likely to be able to guess the allocation that was coming next. Each envelope contained an equal number of each response style, avoidance and focusing (i.e. 3 or 4 of each).

The attentional avoidance group were given the following instructions:

“You are going to be asked to listen to 5 minutes of a recording of random noise. Sometimes people hear words during the recording. While you are listening to the recording please try not to focus on any words you may hear and stop yourself from listening out for them as much as possible.”

The focusing group were given the following instructions:

“You are going to be asked to listen to 5 minutes of a recording of random noise. Sometimes people hear words during the recording. While you are listening to the recording please try and focus on any words you may hear and listen out for them as much as possible.”

These instructions were designed so that the only difference between them was the variable being manipulated. This was in order to isolate the impact of this variable on the outcome measures. The instructions were based on resistance and engagement response styles (Chadwick et al., 2000). This was because these response styles have been identified as common ways of responding to voices and also because our previous review of the literature had identified that they may relate differently to distress levels. However, as these
responses are multifaceted, one specific attentional aspect was chosen. This was again in order to be able to isolate the impact of this variable. Resistance for example, includes various different strategies such as trying to stop the voice and trying to distract oneself from the voice. Not only are these different cognitive or behavioural strategies but they are also likely to have different goals and motivations underlying them.

All participants then listened to the five minute audio recording as described above for the first time. After listening to the tape they rated how anxious (anxiety one) and distressed (distress one) they had felt during the task, how much they had felt able to follow their instructions and also estimated how many words they had heard.

The same recording was then played again but this time participants were asked to make a note of any words they heard while they were listening to the recording. Following this, anxiety (anxiety two) and distress (distress two) during the task were rated again. One participant in the avoidance group withdrew prior to the second play of the audio recording and so data for one person is missing for anxiety two, distress two and the number of words identified at time two.

This two stage design is similar to the approach used in thought suppression experiments. In an early test of this phenomenon, it was found that participants had more thoughts about a white bear following an initial suppression task when released from the suppression instructions as compared to a group told initially to think about a white bear (Wegner et al., 1987). This is known as a rebound effect (Wegner et al., 1987). This paradigm has frequently been used and evidence of the rebound effect has consistently been found (Abramowitz et al., 2001). It was thought that the attentional avoidance manipulation used here may have a similar effect and so a similar methodological approach was taken.

The participant was then debriefed and paid £10 for their time.
3.3.4.4 Analysis

Mean scores were firstly calculated for each anxiety and distress rating and the number of words identified at each time point. Means were also calculated for the subscales of the BAVQ, TCQ and MCQ. For the manipulation check, the average was calculated for how much each participant felt able to follow their instructions. These scores were calculated separately for each group, attentional avoidance and attentional focusing.

A normal distribution is where data is spread symmetrically around the mean, meaning that the majority of people score the mean with gradually fewer people scoring at either outer extreme (Bowling, 2014). This is frequently represented by a bell-shaped curve on a histogram. Where the distribution lacks symmetry, it is said to be skewed (Bowling, 2014). Distributions can also be either flatter or sharper than is ideally required and this is known as kurtosis (DeCarlo, 1997). As many statistical tests require a normal distribution, it is important to test for this or the accuracy of the test may be compromised (Field, 2009). However, others dispute this saying that in samples of greater than five per group, parametric tests are still robust, even when the data is not normally distributed (Norman, 2010). In SPSS, distributions can be checked for normality visually by inspecting the histogram or by calculating skewness and kurtosis. Scores closer to zero indicate normality of the distribution (Ghasemi and Zahediasl, 2012). It is advised to convert skewness and kurtosis scores into z scores by dividing by the respective standard errors. This can be done by hand using the figures from the SPSS output. Using z scores means that the significance of a value is known. Values over 1.96 would be indicative of significant skewness or kurtosis at the 0.05 level (Ghasemi and Zahediasl, 2012). Using this approach it was found that the number of words identified variable was significantly skewed in both groups. The manipulation check was also significantly skewed in the focusing group.

Data for one participant appeared to be a large outlier on the number of words identified variable at both times one and two. Outliers can impact on the normality of a data set and can also lead to bias in statistical analysis (Osborne and Overbay, 2004). Outliers can be caused by errors such as the researcher recording data incorrectly, participants deliberately responding falsely, for example due to concerns about social desirability, or a participant
being selected who actually belongs to a different population to the rest of the sample (Osborne and Overbay, 2004). It is argued that removal of outliers improves the accuracy of statistical tests such as Analysis of Variance (ANOVA, Osborne and Overbay, 2004). These scores were therefore “winsorized”. This means that the original scores were replaced to be one point higher than the next highest scores within the participants group. Using this approach means that the score remains the highest within the data set but it has less effect on the distribution (Osborne and Overbay, 2004).

Data was also transformed using a log transformation. This transformation was chosen as the data was skewed in a positive direction. Also, it was found that the log transformation normalised the data more fully than a square root transformation. Finally, this type of transformation has been recommended above others (Keene, 1995). As there were values of zero in the data for the number of words identified, a constant of 1 was added during the log transformation. This is because this type of transformation cannot provide values of 0 or negative numbers. Some researchers argue that statistical tests such as ANOVA are actually robust to the effects of violations of the normality assumption and suggest that output will be minimally effected (Glass et al., 1972).

A further assumption required for parametric tests is homogeneity of variance (Field, 2009). This means that the variance of the outcome measures should be equivalent across groups (Field, 2009). To calculate this, Levene’s test can be performed using SPSS. If the value produced is non-significant, this suggests that the variances are not significantly different across groups (Field, 2009). Levene’s test is thought to be a robust method for confirming homogeneity of variance (Lim and Loh, 1996). Here, it was found that the variances were equal across groups.

As the data was found to be skewed for the focusing group, a non-parametric test was used for the manipulation check. It was also decided to re-code the data for this variable so as to confirm that both groups felt equally as able to follow the instructions they were given. Therefore, the mid-point of the scale which was originally 50 was re-coded as 0 so that scores of 40 and 60 both became 10. This allowed for direct comparison between groups.
Repeated measures ANOVA or Analysis of Covariance (ANCOVA) were conducted to test for both differences between groups and within groups over time for the number of words identified, anxiety and distress. This type of analysis was chosen as conducting separate tests of differences between groups would not have allowed for analysing any changes over time or comparing the two groups over time (Gueorguieva and Krystal, 2004). The repeated measures ANOVA includes each time point in the analysis and so allows for such comparisons (Gueorguieva and Krystal, 2004). Prior to conducting this type of analysis it is important to check for sphericity, or differences between the variances of scores across conditions (Field, 2009). However, in this case, as each variable had only two levels (responses following the first and second play of the audio); the assumption of sphericity can be assumed to be met (Field, 2009). Number of words identified, anxiety and distress were each analysed as within-subjects variables. Baseline scores for anxiety and distress were added as covariates, as it might be expected that these scores would affect the outcome. Removal of variance associated with the covariate means that more of the variance in the dependent variable will be associated with the independent variable (Miller and Chapman, 2001). The covariate must not be different across groups and so this was initially checked using a t-test and was found to be not significant in each case. This means that removing the variance associated with the covariate does not also remove variance from the grouping variable (Miller and Chapman, 2001). Group (avoidance or focusing) was added as a between-subjects factor.

All the above analysis was conducted using SPSS version 22.

3.3.4.5 Strengths and limitations

As with studies two and three, a limitation of this design is the lack of diversity in the sample. A very specific client group was used and so the findings may not generalise to other populations.

Although the randomisation procedure was stratified by voice hearing status, there were not enough non-voice hearers in the sample to allow for meaningful comparisons to be made. Future research could attempt to address this by recruiting non-voice hearers as a comparison group.
Finally, conducting the testing in participants own homes meant that background noise could not always be controlled for whilst the participant was listening to the audio recording.

However, the strengths of the design include the use of randomisation to reduce the likelihood of non-chance differences occurring between the groups. Further, as much prior research in this field is cross-sectional, this experimental manipulation allows conclusions regarding causation to be drawn, which other research has not been able to do. This was a novel paradigm that isolated a specific aspect of a response style in a clinical sample and, therefore, it is felt that this contributes to the literature on ways of responding to unusual experiences.

3.4 General methodological issues

Across all of these studies general ethical and methodological issues were taken into consideration to ensure the production of high quality research whilst also ensuring limiting the burden caused to participants and any risk to the researcher. Some key issues will briefly be considered below.

3.4.1 Gaining consent

Prior to taking part in any of the research studies described above, participants were given a minimum of twenty-four hours to consider the participant information sheet. The researcher then spent time talking through this information with the individual, allowing them to ask any questions and ensuring the information was understood before taking consent. The researcher had received training from a Clinical Psychologist on determining whether or not an individual had capacity to consent to the research. Capacity relates to the ability to make a decision at a specific time and in a specific situation (Government, 2007). In this way capacity can be thought to be decision specific. Just because someone is considered to lack capacity to make a decision in one area does not mean they also lack capacity in all other areas (Government, 2007). Capacity can also change over time. Key principles include that a person should be assumed to have capacity until it is determined that capacity has been lost and that a person should be supported to make a decision in all possible ways before deciding that they lack capacity (Government, 2007). Assessment of capacity includes determining that the client can understand and retain the information, is able to
consider or weigh up the information and is able to communicate their decision (Nicholson et al., 2008). If the researcher had any doubt regarding any of these areas, consent would not be taken. The researcher could then return to the client on another occasion to re-assess capacity or could be accompanied by a Clinical Psychologist to confirm this decision. However, this was not a frequent occurrence. No participants were excluded from study one due to lack of capacity and in The FOCUS Trial, five individuals were not consented for this reason. Capacity and ongoing consent were confirmed at each contact with the participant.

3.4.2 Managing participant distress

Due to the nature of some of the questions either within interviews or on questionnaires, it is possible that taking part in the research studies could have caused participants some distress. Attempts were made to minimise this in the research design such as through consultation with the PRU SURG about the design of The MCR, the qualitative topic guide and the conduct of The FOCUS Trial. At the beginning of each research assessment, participants are informed that they do not have to answer any questions that they do not feel comfortable answering. During an assessment the researcher would normally ask the participant how they are feeling and, if distress was evident, would ask them if they would like to stop the interview. At the end of the interview the participant was asked how they found the process and it was ensured that they did not experience any distress whilst discussing any difficult topics. The researcher is an Assistant Clinical Psychologist and so has experience of managing distress in an empathic manner in a research setting. The researcher also discussed any concerns with the project supervisor to check that everything possible had been done to ease the client’s distress.

At the end of FOCUS Trial assessments participants were provided with personalised crisis cards detailing the contact numbers for their care team as well as other helpful numbers, such as The Samaritans. The PIS for each study also contained contact numbers for members of the research team who could be contacted if needed.

Finally, where participants expressed that they had experienced distress, the researcher would offer a follow up telephone call for the next day to see how they were feeling. The
researcher may also ask for the client’s permission to inform their care team that they had experienced some distress so that they were able to follow this up with them.

3.4.3 Safe visiting

All research assessments with participants were conducted in line with the PRU safe visiting policy. At the point of receiving a referral, care coordinators or psychiatrists were asked to provide the research team with an up to date risk assessment for their client, including any environmental risk factors as well as risk to self or others. If any issues were raised, the researcher would discuss this in supervision to determine the safest way to proceed with the assessment. In most cases, participants were seen in their own homes in order to make it easier for them to take part in research. If risk issues were present, it may be decided that the researcher should visit the client with another member of staff or arrange to meet the client within a service.

Prior to meeting with a participant, the researcher would complete a safe visiting form detailing the client’s name, address and telephone number as well as any risks that had been identified. It must also be stated what time the visit will begin and end. The researcher then contacts the safe visiting phone before entering the client’s home and on coming out after the assessment. This means that if a researcher has not contacted the safe phone by the agreed time, the staff in charge of the safe phone can make contact to ensure that they are safe.
Chapter 4: Study one - “You’ve got your own demons that you’ve got to fight every day”. A qualitative exploration of how people respond to the experience of psychosis.

The following paper is under second review for publication in Psychology and Psychotherapy: Theory, Research and Practice
“You’ve got your own demons that you’ve got to fight every day”. A qualitative exploration of how people respond to the experience of psychosis.

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4.1 Abstract

Objectives

Cognitive models of psychosis implicate how people respond to their distressing experiences in the maintenance of such experiences. Safety seeking behaviours, which are employed in response to a catastrophic misinterpretation of threat, are viewed as unhelpful maintenance factors. However, the concept of safety seeking was developed in relation to anxiety disorders and there may be additional complexities that apply in relation to the experience of psychosis. The ways in which people respond to their distressing experiences of psychosis is complex, multifaceted and changeable and qualitative research is needed to further the understanding of this process.

Design

A qualitative study was conducted using grounded theory methodology.

Method

In depth interviews were conducted with fifteen participants who had experience of psychosis.

Results

A core category of fighting a daily battle to maintain functioning was identified. Related to this, three main themes also emerged. These were the perceived importance of responses, appraisal of threat and perceived ability to control experiences. These categories are interrelated in that an increase in one is likely to result in increases in the others.

Conclusion

Although these results provide partial support for the traditional view of safety seeking behaviours, they also demonstrate further complexities in the way that distressing psychotic experiences are responded to. This has implications for cognitive behavioural therapy where emphasis is often placed on dropping safety seeking behaviours.
4.2 Introduction

Within a cognitive framework for understanding psychosis, it is thought that the way in which people respond to their distressing experiences can play a part in maintaining these experiences (Garety et al., 2001; Morrison, 2001). Safety seeking behaviours are employed in response to a catastrophic misinterpretation of threat and traditionally have been viewed as unhelpful (Salkovskis, 1991). It has been proposed that the fact that the catastrophe did not occur is then attributed to the use of the safety seeking response and so threat appraisals are not disconfirmed and distress is maintained. Much Cognitive Behavioural Therapy (CBT) involves dropping safety seeking responses in order to evaluate threat appraisals and reduce anxiety (Salkovskis, 1991). However, there are problems with this conceptualisation. For instance, it has been found that there are situations where use of safety seeking does not necessarily interfere with anxiety reduction (Milosevic and Radomsky, 2008). Consideration also needs to be given to situations where there is an element of real threat as responding to this is likely to be adaptive (Helbig-Lang and Petermann, 2010).

There is evidence that people experiencing psychosis do use safety seeking responses to manage their experiences. In relation to persecutory beliefs, it has been found that all participants reported using safety seeking behaviours, most frequently avoidance (Freeman et al., 2001). Further, it was found that use of safety seeking was associated with increased anxiety (Freeman et al., 2001; Freeman et al., 2007). Similar results have also been reported in relation to voice hearing (Hacker et al., 2008). A recent study found that instructing participants experiencing persecutory beliefs to drop their idiosyncratic safety seeking responses in a social virtual reality environment, resulted in decreases in distress associated with paranoia and reductions in threat beliefs (Freeman et al., 2016a).

However, the concept of safety seeking was developed in relation to anxiety disorders and there may be additional complexities that apply in relation to the experience of psychosis. It is known that people with experience of psychosis are more likely to be victims of violent crimes (Hiroeh et al., 2001), are on the receiving end of stigma and discrimination (Thornicroft et al., 2009) and are likely to have experienced childhood trauma and abuse.
(Varese et al., 2012b). Therefore, they are likely to have experience of real threatening situations. Other threat appraisals could also be realistic, such as concerns about being admitted to hospital, the impact of diagnosis or the experience of symptoms of psychosis themselves (Frame and Morrison, 2001). Such life experiences could lead to beliefs that others are dangerous and this could mean that a situation is more likely to be interpreted as indicative of persecution (Gumley and Schwannauer, 2006). Feeling suspicious of others could be understood as an adaptive response in the context of some of these experiences (Mayhew and Gilbert, 2008) and one which could promote survival (Gumley and Schwannauer, 2006).

Responses to psychosis may, therefore, have developed in the context of threatening and frightening experiences and may have been adaptive in this context but at the cost of disrupted interpersonal relations and avoidance (Gumley and Schwannauer, 2006). Such experiences can also reduce resources for coping leading to a greater reliance on avoidant response styles. This conceptualisation maps on to Lazarus and Folkman’s (1984) model of coping as a process which includes two key appraisals. The primary appraisal relates to whether a threat is present and the secondary appraisal to whether this can be coped with. These appraisals appear particularly applicable to the experience of psychosis where sensitivity to threat may be high and coping resources low. Such appraisals will also be influenced by factors relating to the individual person and the situation and, therefore, both whether an event is appraised as threatening and the perception of ability to cope will be person and context dependent (Lazarus and Folkman, 1984).

This suggests that the ways in which people respond to their distressing experiences of psychosis is complex, multifaceted and changeable. Further research is required to unpick the factors relating to how people choose to respond and the impact this has. Qualitative research seems well suited to address this as in depth interviews with people with experience of psychosis allows for rich data to be gathered and to gain insight from the perspective of the individual (Elliott et al., 1999).

This study was therefore intended to investigate how people respond to the experience of psychosis using in depth interviews and qualitative analysis as a primary step that might
contribute to a framework for assessing the nature, components and effects of responses to psychosis.

4.3 Method

4.3.1 Grounded Theory methodology

Grounded theory methodology was selected for this study, with emphasis on a social constructivist approach (Charmaz, 2006). This was felt to be the most suitable approach for this particular area of study as the aims were not to describe the experiences of the participants’, as might be the case using approaches such as Interpretative Phenomenological Analysis, but rather to explore the participants’ experiences more deeply (Starks and Trinidad, 2007). The constructivist approach assumes that both the researcher and the participant create the data and therefore their own particular standpoints and social realities will be brought in to this, data is not simply observation of a single reality (Charmaz, 2008). Therefore, the researcher’s position and the possible impact of this will be taken into consideration, as discussed below.

4.3.2 Reflexivity, rigour and quality

It is acknowledged that the background and standpoint of the researcher will interact with the research process and conclusions drawn and so the impact of this will be monitored throughout the study (Malterud, 2001). The chief investigator on the study is a Research Assistant Psychologist working within a team that specialises in conducting research trials into the efficacy of CBT for psychosis. Therefore, preconceptions relating to this would likely have been carried in to this study. Care will be taken to ensure themes are grounded in the data, rather than arising from these preconceptions (Malterud, 2001).

It is generally agreed that qualitative research cannot be judged by the same criteria as quantitative research. There is less emphasis on representativeness and replicability as the aim is instead to produce an in-depth analysis, which would not be possible with a large sample size and intricacies in the data could be missed (Yardley, 2000). The general philosophy for conducting qualitative research also means that it would be inappropriate to follow a very rigid set of guidelines as this could limit the creative process (Yardley, 2000). However some means of quality assessment is required and a flexible set of criteria for
judging this is suggested by Yardley (2000). These involve consideration of context, commitment and rigour, transparency and coherence and impact and importance. These will be used as a framework throughout the research process.

4.3.3 Participants

Inclusion criteria were relatively broad in order to be able to sample a wide range of participants. Service users could be included if they had experience of schizophrenia, schizoaffective disorder, psychosis or psychotic-like experiences, were aged 16 to 65 and were in regular contact with a health professional (Psychiatrist, Care Coordinator or GP). Exclusion criteria were diagnosis of a developmental disability or organic impairment, a primary diagnosis of substance misuse, non-English speaking and being unable to provide informed consent.

Fifteen participants were recruited from mental health services in the North West of England. All participants were White British. The sample characteristics can be seen in Table 3.

4.3.4 Procedure

All participants consented to having the interview audio recorded and to the researcher using anonymised, direct quotes in the analysis. Interviews were conducted in one meeting with the participant with the exception of one, the longest, which involved two sessions. Interviews ranged in length from twenty five minutes to one hour, forty-five minutes. The majority lasted about one hour. Initial prompts for the interview were four broad areas with several open ended prompts for each. The four areas were background (has anything been bothering you recently?), responses (how do you cope when you feel like that?), advantages and disadvantages (how helpful is this response?) and alternatives (Have you tried other ways of coping in the past?). All interviews were audio recorded and transcribed verbatim by the chief investigator.
Table 3: Study one sample characteristics

<table>
<thead>
<tr>
<th>Participant Number</th>
<th>Name</th>
<th>Age</th>
<th>Gender</th>
<th>Service</th>
<th>Diagnosis</th>
<th>Living situation</th>
<th>Experience of therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>John</td>
<td>46</td>
<td>Male</td>
<td>CMHT</td>
<td>Schizophrenia</td>
<td>Independent</td>
<td>Brief CBT-based intervention, 6-8 sessions</td>
</tr>
<tr>
<td>2</td>
<td>Rachel</td>
<td>22</td>
<td>Female</td>
<td>EI</td>
<td>First episode psychosis</td>
<td>With family</td>
<td>None</td>
</tr>
<tr>
<td>3</td>
<td>Mike</td>
<td>42</td>
<td>Male</td>
<td>CMHT</td>
<td>Schizophrenia</td>
<td>Independent</td>
<td>CBT-based intervention from CPN</td>
</tr>
<tr>
<td>4</td>
<td>Bob</td>
<td>28</td>
<td>Male</td>
<td>EI</td>
<td>First episode psychosis</td>
<td>Independent</td>
<td>None</td>
</tr>
<tr>
<td>5</td>
<td>Daniel</td>
<td>26</td>
<td>Male</td>
<td>EI</td>
<td>First episode psychosis</td>
<td>Independent</td>
<td>Receiving CBT for the past two months</td>
</tr>
<tr>
<td>6</td>
<td>Jane</td>
<td>55</td>
<td>Female</td>
<td>CMHT</td>
<td>Paranoid schizophrenia</td>
<td>Independent</td>
<td>Brief CBT-based stigma reduction intervention</td>
</tr>
<tr>
<td>7</td>
<td>Claire</td>
<td>31</td>
<td>Female</td>
<td>EI</td>
<td>First episode psychosis</td>
<td>Independent</td>
<td>None</td>
</tr>
<tr>
<td>8</td>
<td>Richard</td>
<td>61</td>
<td>Male</td>
<td>GP</td>
<td>Psychosis</td>
<td>Independent</td>
<td>Receiving counselling through the voluntary sector</td>
</tr>
<tr>
<td>9</td>
<td>Tom</td>
<td>41</td>
<td>Male</td>
<td>CMHT</td>
<td>Paranoid schizophrenia</td>
<td>Independent</td>
<td>CBT-based intervention from CPN</td>
</tr>
<tr>
<td>10</td>
<td>Charlotte</td>
<td>32</td>
<td>Female</td>
<td>CMHT</td>
<td>Schizophrenia</td>
<td>Independent</td>
<td>Brief CBT-based trauma-focused intervention</td>
</tr>
<tr>
<td>11</td>
<td>Anthony</td>
<td>56</td>
<td>Male</td>
<td>CMHT</td>
<td>Paranoid schizophrenia</td>
<td>Independent</td>
<td>None</td>
</tr>
<tr>
<td>12</td>
<td>Dave</td>
<td>27</td>
<td>Male</td>
<td>CMHT</td>
<td>Treatment resistant schizophrenia</td>
<td>Supported housing</td>
<td>Nine months of CBT</td>
</tr>
<tr>
<td>13</td>
<td>Lucy</td>
<td>21</td>
<td>Female</td>
<td>EI</td>
<td>First episode psychosis</td>
<td>With family</td>
<td>Six months of CBT</td>
</tr>
<tr>
<td>14</td>
<td>Simon</td>
<td>32</td>
<td>Male</td>
<td>CMHT</td>
<td>Paranoid schizophrenia</td>
<td>With family</td>
<td>None</td>
</tr>
<tr>
<td>15</td>
<td>Will</td>
<td>29</td>
<td>Male</td>
<td>CMHT</td>
<td>Paranoid schizophrenia</td>
<td>Inpatient</td>
<td>None</td>
</tr>
</tbody>
</table>

CBT = Cognitive Behavioural Therapy, CMHT = Community Mental Health Team, CPN = Community Psychiatric Nurse, EI = Early Intervention Team
4.3.5 Analysis

Analysis occurred alongside data collection in that as each interview was conducted, it was transcribed and analysed before conducting the next interview. This allowed for additional questions to be added to the topic guide as the themes developed. This resulted in eight different versions of the topic guide being used with questions added after interviews one, two, four, six, nine, ten and twelve.

Initially interviews were coded line by line. This ensured that coding stuck very close to the data and also meant that meaning was considered in everything that the participant had said so that nothing was missed (Charmaz, 2006). These initial codes were then looked through to see if any specific themes were emerging and if codes could be grouped together into categories. The properties of these categories also helped to determine who it might be helpful to approach for further interviews (Strauss and Corbin, 1998).

The final stage in analysis is axial coding where data is reassembled after having been broken down during the initial coding phase (Strauss and Corbin, 1998). The aim of this process is to link categories with subcategories and to understand the relationship between these. This can finally be represented diagrammatically as a framework for understanding the phenomenon under investigation (Charmaz, 2006).

Throughout the analysis, memos were used to make a note of initial themes of interest, to make comparisons between different sections of data, participants or different themes and to help develop ideas as the research process progressed (Charmaz, 2006). Memos also ensure a record of the analysis is kept and allow for going back to an earlier idea in the light of new interviews and seeing how these fit together (Charmaz, 2006). This process will highlight information that is missing from the categories which in turn will help to direct sampling as the researcher tries to fill in these gaps.

Initially participants were recruited based on meeting the inclusion criteria, rather than applying any other theoretical criteria. Initial themes were reviewed after participant four and from this point theoretical sampling was used to develop the emerging categories (Charmaz, 2006). In this study as some properties of the categories appeared to relate to the stage someone was at in their recovery; attempts were made to find people who were possibly at
different stages, for example, someone who was currently an inpatient and people who had received therapy.

All stages of coding and decisions about sampling were discussed in supervision with both supervisors. Developing themes and categories within the data does involve the researcher making decisions about what the data means and how to follow up on these meanings and therefore discussing this in supervision is useful to ensure that such decisions are grounded in the data (Charmaz, 1990).

Themes were reviewed for a second time following interview nine, by which time the final themes reported here had started to develop. The remaining interviews checked for similarities and differences with these themes and continued until the themes were sufficiently repeating.

The analysis was finally “member checked” with a sub set of the participants to ensure the validity of the results. Five participants were provided with a summary of the analysis as well as a brief explanation of the main themes and excerpts from interviews. They were asked if the analysis seemed to reflect their experiences and for input into labelling the themes. The results were amended to reflect this input.

4.4. Results

4.4.1 Overview

The overall theme that emerged from analysis of the fifteen interviews was that participants feel they have to fight a battle every day to be able to cope with their experiences and maintain daily functioning:

*It's just trying to cope with it it's every day's a battle erm...you've got your own demons that you've got to fight every day (Daniel)*

*There’s there’s an odd day when I just lie down and I just give up, I can't fight it anymore you know and then talk to myself and the day after I'm back trying to do it again you know*  
*(Richard)*
In one case it was recognised that these responses may not always be the most helpful way of responding in the situation but without them they wouldn’t be able to function at all:

*People use it almost as like a...as a tool to achieve the...to win the war as opposed to losing a battle do you know what I mean?* As opposed to losing a battle do you know what I mean? *You're going to lose the battle standing in the corner not engaging but you're doing that so that you win the war of getting over the things in the first place...safety behaviours cos they're a tool to help you achieve that...overall...winning the war as opposed to the battle do you know what I mean?* (John)

John had received short-term CBT and described a negative experience of this in relation to being told to drop his safety seeking responses. This led to exploration with other participants about experiences in therapy.

Three superordinate themes were identified that related to the overall theme. The first of these is perceived importance of responses. This theme has four subordinate themes that reflect varying levels of reliance on responses. The second relates to accuracy of threat appraisals. This theme has three levels that reflect perceptions of threat and memories of danger in the past. The third superordinate theme is the perceived ability to control experiences. This theme has five levels ranging from feeling in control to feeling out of control. It is proposed that these three themes are interrelated and changes in one are likely to result in changes in the other so for example, where there is a feeling of greater reliance on responses there is also likely to be a higher conviction in threat and less feelings of control. Each of these themes will be discussed in more detail below and are illustrated in Figure 6.
Figure 6: Diagram of study one themes
4.4.2 Perceived importance of responses

4.4.2.1 Need to prevent catastrophe

Participants described their responses as being of the utmost importance and keeping them safe from catastrophic outcomes. These ranged from external threats from persecutors or the police to internal threats of being taken over by voices and acting on threatening commands. Participants were asked what would happen if they didn’t have their responses available to them:

*The end of the world! (laughs) literally!*

**Why’s that? What would happen?**

*Because I’d start listening to my voices and I’d start acting towards what my voices were saying* (Mike)

Very important. Very very important. If I didn’t have them I would be locked up (Daniel)

The feared consequences described also relate to the category of loss of perspective as participants had high conviction in these threat appraisals and felt sure that their responses were protecting them from danger:

*Yeah yeah I would get harmed if I went in them areas…Like I said there’s a lot of people out there who want me dead, they really do* (Anthony)

4.4.2.2 Need to get through the day

At the next level of the theme, rather than preventing a feared outcome, responses were seen as important for being able to get through the day and carry out routine activities. Avoidance was talked of as the most extreme form of safety seeking and so many other responses were used in an attempt to prevent avoidance:

*safety behaviours are a tool if you ask people to drop safety behaviours well they might not go out in the first place* (John)
Yeah yeah having a sort of routine in my head of things I do, it gets me through the day (Bob)

Participants described still feeling anxious despite using these responses but their anxiety was reduced enough to be able to maintain daily activities:

*It doesn’t make me feel any ... it will take the edge off it, I still feel worried you know what I mean but I can at least come about I can ring people, I can go and visit, I can do things instead of being oh shit I don’t know what to do* (Tom)

This category again appeared to relate to the category of loss of perspective as responses were used to try and prevent this from happening. As mentioned above, responses were used to prevent avoidance, as this could result in too much time thinking about beliefs allowing these to “snowball”. Another commonly described response was focusing the mind and again it seems that this served the function for participants of stopping their beliefs from getting out of control:

*You know if I’m if I’m on my own maybe it snowballs, that’s where the paranoia comes in that’s where that’s where I can make a situation bigger than it is* (Richard)

*I just don’t think about it, if I’m not thinking about it then I’m not like I said (getting anxious) I just focus, focus, focus so that stops me thinking about what could happen...I just walk...like I said when I go out I’m focusing it’s like, it’s like a horse with blinkers, I just just see...what I want to see you know what I mean?* (Anthony)

### 4.4.2.3 Not using but there if needed

As participants started to feel less reliant on their safety seeking responses, they talked of not actually using them but feeling better knowing they were there if needed. They also described feeling that a problem would be more likely to occur if the safety seeking response wasn’t there, despite the fact they weren’t actually using it:
No but it's like a safety net. How many tight rope walkers actually fall in the safety net because they're used to it but if they do need it it's there (Jane)

On a better day I won't really need them, I just..I'll use them..if I do need them then I know they're there (Charlotte)

Not all participants had reached this stage of feeling less reliant on responses. The two participants above had both received CBT and were feeling more able to manage their difficulties. In particular following the interview with Jane, different stages of recovery started to be explored in greater depth.

This relates to the category of sometimes feeling in control, depending on mood as Charlotte describes above, but not feeling entirely confident in ability to control experiences, hence keeping responses available just in case.

**4.4.2.4 Realising responses are not needed**

At the final level, participants looked back on their experiences from a different perspective and said that although it had felt extremely important at the time, they now felt that their responses hadn’t actually contributed to their safety and in some cases may have in fact been unhelpful:

*I don't know I think it was never helpful I think it was the same as the phone calls that were never helpful but it felt erm important to do at the time so... (Rachel)*

*Well...well...looking back on it it were silly really but to me it weren't...I was glad to stop doing it do you know what I mean, I thought it was silly you know what I mean but at the time when I was doing it it weren't silly it was like I had to check it before I went to sleep (Anthony)*

Questions relating to changing perspective on responses were added following analysis of Rachel’s interview. She had found the support of the Early Intervention team very helpful in
her recovery.

This theme also relates to self-awareness as becoming aware that the threat is not as bad as they previously thought helped participants to see they no longer needed their responses:

Well in reality it doesn't stop anything from happening but it's just erm you're not in reality are you when you're in psychosis (Rachel)

4.4.3 Accuracy of threat appraisal

4.4.3.1 Loss of perspective

Participants talked about becoming lost in their own world and using responses to try and prevent this from happening.

I knew myself that I'd lost touch with reality a bit (Tom)

Just losing my..being able to..my thoughts and... just going in my own world

ok so, going in to your own world? What's it like in your own world?

Not good 'cause you believe things the voices are saying (Simon)

They talked about avoidance as something that could contribute to becoming lost in their thoughts as the isolation and lack of activity could lead to more rumination on beliefs.

Normality...instead of being deluded and secluded in your brain to a certain dimension you can talk to people and just be happy with them you know and talk to them with normality (Will)

Overall, this was described as a confusing and frightening time that participants did not want to go back to and it also seemed to be associated with less feelings of control over their experiences:

Well I got to a stage where I didn't know what were real and what weren't you know what I mean? (Jane)
You just don’t know because when erm when you’re like in that sort of state of mind your mind is just elsewhere isn’t it like you’re just in a different place and you don’t know what what would be…you don’t know what’s going on and what’s right and what’s wrong…your…yeah (Rachel)

4.4.3.2 Elements of real threat

Participants talked about guarding against re-occurrence of incidents that had happened in the past, such as hurting themselves or others or incidents where they have been the victims of attacks themselves. Therefore, there were aspects of the feared outcomes that were very real and participants did not want to risk this happening again.

I have tried it before, I’ve not killed somebody but I have tried hurting people before (Mike)

Just so I don’t die, just to keep me alive ‘cause I’m frightened that if I ever do listen to her, like in the past I’ve been in hospital where I’ve took overdoses ‘cause I’ve listened to her so keeping these coping strategies going it means I’m not going to end up doing anything stupid (Charlotte)

The element of real threat had not been anticipated prior to conducting the interviews and was added to the topic guide following discussion with Mike, who had also had earlier traumatic experiences in life as a result of serving in the military.

Some responses therefore seemed to be reasonable based on the experiences the participants had been through:

Well they put the window through…erm they rammed me through to kitchen erm…and it was like…they were hitting me with pans and I was putting my arm up…(Anthony)

Participants also talked about the implications this has for therapy and being told to drop safety seeking responses seen as unhelpful.

You do feel a bit affronted, you do as you have these certain ideas and beliefs and although you may be mentally ill they’re usually grounded in some sort of experience or fact in some
way, at least for me anyway and then kind of get extrapolated in to illness (Tom)

### 4.4.3.3 Self-awareness

At this final level participants again described a change of perspective where they came to realise that the consequence they had been dreading was not going to happen.

*I didn't realise I was I didn't realise they were voices at the time. I thought it was just the normal thing* (Mike)

*I was worried that he was trying to poison me mind whereas now I know that he's not, he's just trying to help so now I can sit with him* (Charlotte)

This increased awareness helped participants to feel they had more control over what they were experiencing:

*I know I have I now have complete control over them 'cause I know they're not real* (Lucy)

Lucy had also received CBT and found this beneficial.

### 4.4.4 Perceived ability to control experiences

#### 4.4.4.1 Not in control and feeling defeated

A strong theme running throughout the interviews was how uncontrollable experiences were perceived to be and so responses were being used in an attempt to try and gain some control.

*I thought that there was a chance that I could commit this stuff, you know like it was out of my control* (Rachel)

*The voices were getting louder...erm...it was just getting louder and louder and you start panicking because you can’t do nothing about it* (Daniel)
Participants sometimes descried their experiences as so uncontrollable that they feel defeated and give up the daily battle:

*theres an odd day when I just lie down and I just give up, I can't fight it anymore you know* (Richard)

This category seemed to relate to the loss of perspective category in that experiences perceived as less controllable seemed to be attributed to external causes:

*She takes over my body as well sometimes, where I can sit it's like I'm sat in the back of my head and I can see through my eyes but she's got me tied up and she takes over and she can do things so in the past I've hurt my partner, I've beat him up a few times where she's took over and I've come round after afterwards and thought what's gone on* (Charlotte)

It appeared that feelings of control could be reduced by contact with mental health services:

*I think it's just being like sectioned and...because I know they can put you there at the click of the fingers if they wanted to* (Lucy)

Finally it appeared that where experiences felt less controllable, participants were describing their responses as frequent, habitual and carried out with minimal awareness, rather than something they had to think consciously about using.

*I'm sort of ...not consciously but I'm partaking in safety behaviours to achieve that end do y'know what I mean?* (John)

Yeah I'm so much in the routine, I've been dealing with them since I was 7 erm it just happens naturally, it's like riding a bike sort of thing (Bob)

Bob had not received any form of psychological therapy and John had received a brief form of CBT but not found this beneficial.
4.4.4.2 Not in control and looking for rescue

Due to the fact that experiences felt out of control, participants talked about looking for help from external sources by engaging with prayer or superstitious rituals. This suggests that participants still had a degree of hope that the situation could improve in contrast to the above feelings of defeat:

_Erm...I think I might have felt a bit like it could stop, it was just kind of like a prayer really you know just like... hoping that I wasn't going to prison, every time I said prison I'd have to touch wood and like cross my fingers_ (Rachel)

_I know... a get out of jail card_ (Simon)

This would also suggest that participants were not confident in their own ability to control their experiences as they were seeking help from elsewhere.

4.4.4.3 Accepting what can’t be controlled

At the next level of this category participants talked about acceptance of events outside of their control in contrast to feeling overwhelmed and defeated by this.

_Now I've been taught sometimes it cannot be helped...if it's in a situation that nobody can stop then I've just got to learn to live with it because nothing I can do can change that_ (Lucy)

_There's a saying in AA and it's to do the things that I can do something about and accept the stuff that I can't do and then the wisdom to know the difference_ (Richard)

This contrasts to the feelings of defeat discussed above and was described as a positive and helpful acceptance that not everything can be controlled for rather than of giving up because there’s no point trying.
4.4.4.4 Sometimes in control

Participants talked about the impact of their mood on the level of control they felt they had over their experiences. It appeared that feeling low in mood and confidence was related to less feelings of control. They also described how this could change from day to day:

Yeah it just depends on the day and situations and stress and how I feel and pain (Bob)

But if I’m having a bad day then I fee…the control just goes completely and then you have no control over the control…It’s always my mood. If I’m happy, I have all the control in the world (Lucy)

4.4.4.5 Feeling in control and able to cope

For some participants there was a move to feeling more in control of experiences. As discussed above, controllability of experiences appeared to relate to how hopeful the participant felt and how much confidence they had in their own ability to manage their experiences.

‘Cause it was a sort of erm…an internal sort of thing you know like it was coming from me of a moment of like… hope rather than coming from other people which I wasn’t quite believing for a long time you know (Rachel)

I’ve just become more stronger in myself and I feel more powerful enough to ignore her and just keep going and find things to do and if she does start I just go not today, I’m not listening… (Charlotte)

I wonder why that is, I wonder what’s changed?

Environment, well-being, anxiety, feeling it within yourself

ok

Just wellbeing (Will)

This contrasts with the search for rescue mentioned above as it seems participants move to feeling more able to manage their experiences for themselves:
If you can’t help yourself then no-one else can help pick you up (Daniel)

In some ways yeah but in other ways there are still certain things that I’ll probably have to learn myself to stop doing I mean not everybody can teach you everything (Lucy)

Participants described a shift from responding habitually and with little awareness to developing an ability to monitor their responses. This appeared to relate to feeling that experiences were more controllable.

And there was...like the positives and negatives of everything that you’re doing, ’cause beforehand I just wouldn’t think I’d just go ahead and do it and not be bothered but now I take the time to actually sit back and say well if I go ahead and do this what’s going to happen and then make a list (Lucy)

Yeah it's only the past 18 months to 2 years where I've really started thinking about the way I do things and the way I act, how to ignore her, how to keep myself going things like that (Charlotte)

It appeared to be those participants who had worked with a therapist who were gaining recognition and awareness of their responses and finding benefit in this. Lucy and Charlotte above had both received CBT.

Finally, participants seemed to associate gaining control with recovery:

Well it's mainly short term benefits but I am hoping one day to get fully control and be happy, fully happy (Bob)
4.5 Discussion

4.5.1 Summary of results

Fifteen people were interviewed about the ways that they respond to their experiences of psychosis. The results indicated that participants find every day a battle and carry out a range of cognitive and behavioural responses in an attempt to manage their distressing experiences.

The analysis partially supports the cognitive behavioural view of safety seeking responses in that it was found that where participants reported losing touch with reality and becoming overwhelmed by their beliefs and voices, they reported a greater reliance on responses. It also emerged that using safety seeking behaviours was associated with lower feelings of control, as the upper level of the diagram presented here demonstrates. Therefore, it seems that responses of this nature could be maintaining distress and catastrophic appraisals as proposed (Salkovskis, 1991). Interventions designed to support clients to drop such responses may therefore be beneficial (Freeman et al., 2016a).

However, the other levels of the diagram indicate that there was a greater complexity to responding than the traditional safety seeking theory could account for. At the other end of the spectrum, participants who felt they had control over their experiences had gained perspective that their fears may not be real and felt they no longer needed their responses. They were also able to look back and identify responses which, although had felt helpful at the time, probably had not actually been necessary. Feelings of control were associated with hope, mood and a conscious monitoring of responses. This conscious monitoring appeared to have developed through receiving therapeutic intervention and the opportunity to discuss response styles. Looking at the pros and cons of responses and how adaptive they may be in the current context may help to facilitate this (Gumley and Schwannauer, 2006).

In the centre of the continuum, there were responses that participants felt were necessary for being able to function on a daily basis. Some of these responses were protecting them against threats that may have been realistic and that had actually occurred in the past. This included acting on commanding voices to hurt themselves or others. Participants viewed
avoidance as the most extreme and unhelpful response and, therefore, other responses were being utilised to prevent avoidant behaviours. For these participants, being told to stop using their responses by therapists or members of the care team resulted in feelings of frustration and could potentially lead to disengagement from services.

It could be that certain responses had been adaptive in adverse situations (Mayhew and Gilbert, 2008). However, participants also described costs of such responses, including difficulties in engaging with others (Gumley and Schwannauer, 2006).

The results are also consistent with transactional theory of coping which proposes that there is a dynamic relationship between the individual and their environment (Lazarus and Folkman, 1987). The primary appraisal relates to the theme of threat appraisals identified in this analysis and the secondary appraisal to perceptions of ability to control experiences. Lazarus and Folkman (1987) also describe the interaction between these appraisals as similar to that observed here. For example, greater feelings of control result in situations being appraised as less threatening and where there is a greater perception of threat, more importance is placed on coping responses (Lazarus and Folkman, 1987). The transactional model suggests that appraisal can vary from situation to situation and that effective coping will depend on the accuracy of the threat appraisal and accuracy of control appraisals. (Lazarus and Folkman, 1987). This is supported in the analysis here as participants talk about sometimes feeling able to cope, depending on the day and how they were feeling.

These results can be interpreted within the context of a specific coping model, The S-REF model (Wells and Matthews, 1994a) which proposes that distress arises as a result of an unhelpful thinking style known as the CAS; this consists of unhelpful coping responses including extended processing of threat, threat monitoring and counterproductive control strategies. In the present sample perceptions of control were associated with increased awareness and monitoring of actions suggesting greater activation of executive processing that might be in opposition to coping through inaction and withdrawal of cognitive resources that are likely to be more maladaptive responses to psychosis.
4.5.2 Limitations
Weaknesses of the study include that inter-rater reliability was not used to determine the validity of the analysis. However, this approach does not necessarily eliminate subjectivity in qualitative research (Yardley, 2000). Several quotes were provided for each theme to allow the reader to interpret the data for themselves. A small sample size was used which may limit the generalisability of the results. This is a general criticism of qualitative approaches. However, the small sample is not necessarily seen as a weakness here as it allowed for in depth study of the interviews and a rich analysis to be produced.

4.5.3 Further research
Further research could aim to quantify the associations that have been found here between accuracy of threat appraisals, feelings of control and responding to psychosis. Investigating the relationship between these variables and early trauma and attachment styles would also be of interest. In relation to our finding of various levels of reliance on responses, experimental studies could be conducted allowing for different levels of response utilisation to determine the impact of this on threat beliefs and distress.

4.5.4 Implications for clinical practice
The analysis presented here suggests that the emphasis in therapy on dropping safety behaviours may not always be appropriate. For example, this may contribute to reductions in control and the withdrawal of effort. The lower levels of the diagram presented here suggest that there is more complexity to the way people respond and the potential consequences than the safety seeking literature would suggest. For instance, in some cases it became apparent through listening to participants that responses were being used to guard against real threats that had previously caused them harm, such as acting on commanding voices. Some of the participants in this study described frustrating experiences in therapy where they were told to drop responses that were important to them and that were helping them to maintain daily functioning. This approach could, therefore, have an impact on engagement in therapy and have the effect of reducing the client’s feelings of choice and control, since it is suggested that services should not be overly intensive or dominating in their approach to engagement (Tait et al., 2004).
Other approaches used in CBT for psychosis, such as conducting a detailed assessment of strategies used historically and how these may have been helpful previously, for example, suspiciousness and withdrawal as a survival strategy, should be conducted (Gumley and Schwannauer, 2006). This normalises response styles as understandable within the context of certain life experiences and allows for discussion of their utility within the current context (Gumley and Schwannauer, 2006).

The therapist should support the client to evaluate the importance of their responses alongside the accuracy of both their threat appraisals and the perceptions of their ability to control their experiences. Changes in appraisals of threat and control may help the client to gain the confidence to try out alternative coping strategies. This could further challenge threat appraisals and enhance perceptions of control leading to reductions in distress and improvements in functioning.
Chapter 5: Study 2 - Measuring Common Responses to Psychosis:

Assessing the Psychometric Properties of a New Measure

The following paper is currently in press in Schizophrenia Research.

DOI: 10.1016/j.schres.2016.10.015
Measuring Common Responses to Psychosis: Assessing the Psychometric Properties of a New Measure

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5.1 Abstract

Responses to psychotic experiences are central to cognitive models of psychosis. The current study aimed to develop and validate a self-report measure of common responses to the experience of psychosis. This measure is needed as cognitive and behavioural responses are implicated in the maintenance of psychosis, but there is currently no measure that comprehensively assesses these maintaining factors. The Measure of Common Responses to psychosis (MCR) was developed and utilised in a sample of 487 participants who met criteria for treatment-resistant schizophrenia. Principal components analysis using data from 287 participants reduced the initial item pool of 31 items to 15 items with a three component structure. The components represented social control and reassurance seeking, threat monitoring and avoidance and conscious self-regulation attempts. Confirmatory factor analysis using data from the remaining 200 participants generally supported this three factor structure. The three subscales were found to have good internal consistency and convergent validity. The MCR, therefore, appears to be a useful tool to identify and monitor response styles, and could be utilised in further research to increase our understanding of the complex relationships between responses, symptoms and distress. It can also be used in clinical practice to elicit information that will be helpful in the psychological formulation and treatment of psychosis.

Keywords: schizophrenia; psychosis; safety-seeking behaviours; coping; self-regulation
5.2 Introduction

Ways of responding to psychotic experiences are central to psychological models of the maintenance of distressing psychosis (e.g. Garety et al., 2001; Morrison, 2001). These experiences can be responded to using a range of strategies. Safety-seeking behaviours are considered to be unhelpful strategies used to manage the distress arising from a catastrophic misinterpretation of a situation (Salkovskis, 1991). Safety-seeking behaviours are thought to be unhelpful due to the fact they do not allow for such threat appraisals to be evaluated (Salkovskis, 1991). In contrast, coping responses are defined as cognitive and behavioural strategies employed to manage stressful situations (Lazarus and Folkman, 1984). Such responses are thought to be helpful because they are intended to manage the distress alone and not a faulty threat appraisal (Salkovskis, 1991).

There are problems with this conceptualisation, however, as it does not allow for situations where there is a real threat or for ineffective use of coping, even in the absence of a misinterpretation of threat. Some studies have also shown that safety-seeking behaviours can be carefully used during exposure therapy without having a counterproductive impact (Milosevic and Radomsky, 2008). Further, differentiating between safety seeking and coping can be difficult as responses may appear behaviourally to be the same, and it is only the appraisal driving the behaviour that differs.

There are several measures to assess other parts of the cognitive model; for example, appraisals can be assessed by The Beliefs about Paranoia Scale (BAPS, Morrison et al., 2005) and distress using the Calgary Depression Scale for Schizophrenia (CDSS, Addington et al., 1992). However, there is no existing measure to comprehensively assess cognitive and behavioural responses to psychosis.

As responses are considered a key aspect of the cognitive model, a measure is needed to aid in the assessment and monitoring of this. One measure has been developed to assess safety-seeking behaviour in people with psychosis. An interview measure, The Safety Behaviour Questionnaire (SBQ), has been developed in samples of people experiencing persecutory beliefs (Freeman et al., 2001). It has been found to be reliable and valid overall; however, there were some issues with reliability of some of the sub-scales (Freeman et al.,
Further, the SBQ has not been factor analysed and, therefore, its construct validity is unknown. It also cannot be administered by self-report. A self-report measure of responses specific to paranoia has been developed; however, this was developed in a non-clinical sample and the responses include emotional and physical reactions, so is not a specific measure of cognitive and behavioural responses (Lincoln et al., 2010).

A self-report measure has been developed for use with voice hearers (Chadwick and Birchwood, 1995). However, this only captures two behavioural response styles, resistance and engagement, and is specific to voice hearing.

There are numerous measures that are used to assess coping; however, these have generally been designed and validated in non-clinical samples (e.g. The COPE, Carver et al., 1989). Despite this, they have been used effectively in research using samples with a schizophrenia diagnosis (e.g. MacAulay and Cohen, 2013). The Ways of Coping Questionnaire (WCQ) has been adapted for use with psychosis samples specifically and has been found to be a reliable and valid measure (Lysaker et al., 2004a). However, as this was an adaptation of the existing measure, the subscales were decided upon a priori, rather than through exploration of the data (Lysaker et al., 2004a).

A measure of coping that has been developed specifically in a psychosis sample is the Maastricht Assessment of Coping Strategies (MACS, Bak et al., 2001). It is composed of five factors, active problem solving, passive and active problem avoiding, passive illness behaviour and symptomatic behaviour (Bak et al., 2001). This interview based measure allows the participant to freely report their own idiosyncratic coping strategies, and so makes comparison between participants difficult.

Since there is no self-report measure that comprehensively assesses cognitive and behavioural responses to psychosis, which are an important component of cognitive models, we aimed to develop and validate a self-report measure that incorporates both safety-seeking behaviours and coping responses specific to distressing psychotic experiences in a clinical population.
5.3 Method

5.3.1 Participants

Participants were 487 individuals recruited as part of a separate clinical trial looking at the effectiveness of Cognitive Behavioural Therapy (CBT) for clozapine resistant schizophrenia (The FOCUS Trial). Participants were eligible to take part if they were considered to have had an inadequate response to clozapine, specifically treatment of clozapine at a stable dose of 400mg or more (unless limited by tolerability) for at least twelve weeks, or if currently augmented with a second antipsychotic that this had been given for at least twelve weeks, without remission of psychotic symptoms. Alternatively, participants could have discontinued clozapine in the past two years.

Participants were required to score a minimum total score of 58 on the Positive and Negative Syndrome Scale (PANSS) as well as 4 or more for either delusions or hallucinations or 5 or more for suspiciousness or grandiosity. They all had an identified care coordinator or consultant psychiatrist and had not received CBT in the past twelve months. Exclusion criteria were a primary diagnosis of substance or alcohol dependence, diagnosis of developmental disability, organic impairment and non-English speaking. Participants were recruited from five sites across the UK (Manchester, Southampton, Newcastle, Glasgow and Edinburgh).

The sample characteristics can be seen in Table 4.
Table 4: Study two sample characteristics

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5.3.2 Measures

The PANSS (Kay et al., 1987) is a 30-item semi-structured interview to assess the severity of psychotic symptoms. Seven items assess positive symptoms, seven items assess negative symptoms and 16 items assess general psychopathology. All items are scored between 1 (absent) and 7 (extreme).

The Psychotic Symptom Rating Scale (The PSYRATS, Haddock et al., 1999) is a semi-structured interview with twelve items assessing aspects of voice hearing such as frequency, volume, distress and disruption, and six items assessing aspects of unusual beliefs such as preoccupation, distress and disruption. All items are scored from 0 to 4.

The Anxious Thoughts Inventory (The AnTI, Wells, 1994) is a 22-item self-report questionnaire designed to measure aspects of worry. Each question is scored from 1 (almost never) to 4 (almost always). This study used only the 7 item meta-worry scale.

The Measure of Common Responses to Unusual Experiences (MCR): This measure was developed for this study. A large item pool was developed and refined through reference to the existing literature and through consultation with specialists in the field of interest (Bowling, 2014; Rattray and Jones, 2007). Measures already available in this area such as the Safety Behaviour Questionnaire (Freeman et al., 2001), the Fear questionnaire (Marks and Mathews, 1979), the Thought Control Questionnaire (Wells and Davies, 1994) and other measures of anxiety (Wells, 1997) were reviewed for key themes covered. Items were not taken directly from these but were generated on the basis of these themes. Experts in the field were then consulted. The first author attended a meeting of a Service User Reference Group (SURG). They were asked for their feedback on which items should be included in the measure, the wording and order of the items and also the wording of the instructions for completion. The measure was amended following the comments made by The SURG. Two Clinical Psychologists and two Psychiatrists were then consulted and items were further amended following their suggestions.
Through the consultation process the wording of the items was refined and the number of items was reduced to 31. The instructions and final items are included in Appendix Nine.

Participants were asked to rate how frequently they used each response using a scale ranging from 1 (never) to 4 (almost always).

5.3.3 Procedure
The results reported here are taken from measures given at the baseline assessment for the FOCUS Trial. Assessments normally lasted one to two hours and in the majority of cases were conducted in the participant's own home. Participants were paid £10 for completion of this assessment.

5.3.4 Statistical analysis
Data was initially explored with principal components analysis (PCA) using data from a randomly selected subset of 287 participants from the overall sample. Internal consistency was assessed using Cronbach's alpha. For the purposes of testing the long term stability of the measure, data from the 9-month follow-up assessment was used for the treatment as usual group only (this data was analysed by an independent statistician to maintain blinding of assessments). Although this is a longer timeframe than would be used for test-retest reliability, our participants are considered to be "treatment resistant" and, therefore, experiencing chronic and persistent symptoms (Meltzer, 1997). Thus, it was assumed that those participants not allocated to the treatment arm of the trial were likely to be stable over this period.

Data from the remaining subset of 200 participants was used for confirmatory factor analysis (CFA) using AMOS (version 22). Finally, data from the full sample of 487 participants was used to assess convergent validity by looking at correlations between each subscale and the other measures included.
5.4 Results

5.4.1 Reliability and factor structure

PCA with oblique rotation (direct oblimin) was conducted including all 31 items from the MCR. The Kaiser-Meyer-Olkin statistic indicated that the sample size was adequate for conducting a PCA (KMO = 0.835). Bartlett's test of sphericity was also found to be significant ($\chi^2 (465) = 1956.223, p < .000$).

The scree plot suggested that 3 components should be retained, based on Cattell’s guidelines for including the component at the point where the scree plot flattens out (Cattell, 1966). Parallel analysis confirmed that 3 components reached significance (O'Connor, 2000), therefore, 3 components were extracted. Items were considered to load on to a component if the loading was greater than 0.4. Where items did not load at above 0.4 on any of the components or loaded at above 0.4 on two components without a difference of 0.2 between them, these items were removed.

This initial solution comprised of 19 items that accounted for 44.85% of the variance. The components were interpreted through discussion of the meaning of the highest loading items on each component (Kline, 1994). The seven items that loaded on to the first component related to conscious self-regulation attempts ($\alpha = 0.750$), the second component had seven items relating to threat monitoring and avoidance ($\alpha = 0.760$). The third component had five items and related to social control and reassurance seeking ($\alpha = 0.746$). Deleting one item from the conscious self-regulation attempts scale improved the alpha for that scale and so this item was dropped. The other lowest loading items were then dropped so that each sub-scale consisted of five items. It was decided to make the subscales equal length for ease of comparison as has been done in the development of other scales (e.g. Wells and Davies, 1994). The final 15 item solution was found to account for 50.59% of the variance. The final component matrix can be seen in Table 5, along with the alphas for each subscale and the long term stability analysis, which was calculated using the intraclass correlation coefficient for each subscale.
Table 5: Results of the principal components analysis (N = 244)

<table>
<thead>
<tr>
<th>Component</th>
<th>Social control and reassurance seeking</th>
<th>Threat monitoring and avoidance</th>
<th>Conscious self-regulation attempts</th>
</tr>
</thead>
<tbody>
<tr>
<td>I talk to someone about my problems</td>
<td>.783</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I ask for help from friends or professionals</td>
<td>.735</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I try to tell as many people as possible about what is happening</td>
<td>.725</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I ask somebody if I’m going to be ok</td>
<td>.621</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I try to be with someone as much as possible</td>
<td>.590</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I isolate myself from other people</td>
<td>.734</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I avoid doing certain things or going to certain places</td>
<td>.733</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have to leave a situation in a hurry or run away</td>
<td>.723</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I look out for danger when I'm out</td>
<td>.652</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I think about what I've done to deserve my unusual experiences</td>
<td>.650</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I try to think about my experiences in a different way or look for evidence</td>
<td></td>
<td></td>
<td>-.718</td>
</tr>
<tr>
<td>I try to control my experiences</td>
<td></td>
<td></td>
<td>-.711</td>
</tr>
<tr>
<td>I focus on myself and my behaviour</td>
<td></td>
<td></td>
<td>-.680</td>
</tr>
<tr>
<td>I try to calm myself</td>
<td></td>
<td></td>
<td>-.651</td>
</tr>
<tr>
<td>I think of ways to solve my problems</td>
<td></td>
<td></td>
<td>-.630</td>
</tr>
<tr>
<td>Cronbach’s alpha (N)</td>
<td>0.746 (253)</td>
<td>0.757 (253)</td>
<td>0.712 (247)</td>
</tr>
<tr>
<td>Long term stability (N)</td>
<td>0.41 (229)</td>
<td>0.66 (228)</td>
<td>0.47 (226)</td>
</tr>
</tbody>
</table>
5.4.2 CFA
The three component solution was modelled. A non-significant chi-square result indicates a well-fitting model. In this case the chi-square was found to be significant ($\chi^2 (87) = 169.814$, $p = 0.000$). However, as chi-square can be problematic in samples of 200 or more (Hoe, 2008), the adjusted chi-square (CMIN/DF) was looked at as this can provide a more accurate indicator in larger samples. This was found to be acceptable as it was lower than the suggested cut-off of 3 (1.952, Hoe, 2008). The RMSEA is considered acceptable if it is below 0.08 (Hoe, 2008) and ideally below 0.06 (Hu and Bentler, 1999). The RMSEA found here was 0.069, indicating adequate fit. The GFI reached the suggested cut off of 0.9 (0.901). SRMR was 0.0784, indicating good fit (<0.08, Hu and Bentler, 1999). The CFI did not meet the recommended cut-off of 0.90 (0.809), and neither did the TLI (0.769, Hoe, 2008), therefore the minimum requirement for adequate fit was not met for the final two indices. Modification indices suggested adding covariances between two error terms on the social control scale and two on the self-regulation scale. These made theoretical sense and improved the fit as follows: $\chi^2 (85) = 151.79$, $p = 0.000$, CMIN/DF = 1.79, RMSEA = 0.063, GFI = 0.913, SRMR = 0.0768, CFI = 0.846, TLI = 0.809.

5.4.3 Convergent validity
Correlations were conducted between factor scores on each component and items that they were theoretically predicted to relate to from the other measures.

**Conscious self-regulation attempts:** As this component relates to deliberately trying to think about and control experiences, it was thought that this could relate to preoccupation with beliefs as measured by the PSYRATS, as this assesses the frequency and duration of thoughts about unusual beliefs. It was also expected to be related to the meta-worry scale of the AnTI, as this includes similar concepts relating to awareness of thoughts such as “I worry that I cannot control my thoughts as well as I would like to” (Wells, 1994). Predictions were partially supported as a significant correlation was found with meta-worry ($r = 0.115$, $p = 0.019$) but not with frequency and duration of preoccupation with unusual beliefs ($r = 0.043$, $p = 0.369$).
**Threat monitoring and avoidance:** Based on the work of Freeman et al (2001) it was expected that this subscale would relate to paranoia and anxiety. They found that in participants with persecutory beliefs, avoidance was the most commonly used safety seeking strategy and that this was associated with anxiety. Active social avoidance was also chosen as a similar concept to threat monitoring and avoidance, as this measures reduced social contact due to fear or distrust (Kay et al., 1987). Paranoia, anxiety and active social avoidance were all measured by the PANSS. Significant positive correlations were found with suspiciousness ($r = 0.281, p < 0.001$), anxiety ($r = 0.343, p < 0.001$) and active avoidance ($r = 0.408, p < 0.001$).

**Social control and reassurance seeking:** This component was predicted to be negatively associated with each of the social items measured by the PANSS. These are active social avoidance, passive or apathetic social withdrawal and emotional withdrawal. The latter two measure reduced social involvement due to apathy or avolition and a lack of interest in people and events in the surroundings (Kay et al., 1987). Significant negative correlations were found with each of the social items: active avoidance ($r = -0.166, p = 0.001$), passive withdrawal ($r = -0.154, p = 0.001$) and emotional withdrawal ($r = -0.263, p < 0.001$).

Correlations were also conducted between each subscale and PANSS items. The results of this are shown in Table 6.

**Table 6: Correlations between subscales and PANSS items (N = 437)**

<table>
<thead>
<tr>
<th></th>
<th>P1: Delusions</th>
<th>P3: Hallucinations</th>
<th>G2: Anxiety</th>
<th>G6: Depression</th>
<th>PANSS total score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conscious self-regulation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson correlation</td>
<td>.081</td>
<td>.078</td>
<td>.014</td>
<td>.048</td>
<td>.096*</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.092</td>
<td>.102</td>
<td>.770</td>
<td>.312</td>
<td>.045</td>
</tr>
<tr>
<td><strong>Social control and reassurance seeking</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson correlation</td>
<td>.014</td>
<td>.052</td>
<td>.032</td>
<td>-.008</td>
<td>.012</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.775</td>
<td>.277</td>
<td>.507</td>
<td>.861</td>
<td>.808</td>
</tr>
<tr>
<td><strong>Threat monitoring and avoidance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson correlation</td>
<td>.165**</td>
<td>.148**</td>
<td>.343**</td>
<td>.309**</td>
<td>.232**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.001</td>
<td>.002</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
</tbody>
</table>

*p<0.05   **p<0.01
5.5. Discussion

5.5.1 Summary of results

This study was able to develop and provide preliminary validation of a self-report questionnaire to assess cognitive and behavioural responses to the experience of psychosis, which are an important aspect of cognitive models of psychosis.

The final measure comprised fifteen items forming three subscales labelled conscious self-regulation, threat monitoring and avoidance, and social control and reassurance seeking. These three subscales were found to have acceptable levels of internal consistency, with Cronbach’s alpha of above 0.7 (Nunnally, 1978). Confirmatory factor analysis supported the three component structure with most indices indicating a good fit.

Although the effects were small, correlations of the subscales with measures of psychosis and meta-worry demonstrated convergent validity. Most predictions were supported, suggesting the subscales are a valid representation of the construct they are thought to be measuring. The exception was that the self-regulation subscale did not correlate with preoccupation. However, it may be that these are measuring slightly different concepts. The PSYRATS is specifically measuring frequency and duration of preoccupation with unusual beliefs whereas the self-regulation scale found here reflects specific strategies used in response to distressing experiences.

It was found that the component relating to threat monitoring and avoidance correlated positively with all PANSS items. This has been a consistent finding in both the safety-seeking and coping literature suggesting that avoidant strategies are associated with greater symptom severity. For example, it has been found that avoidance is the most commonly reported response in relation to persecutory beliefs and is positively associated with anxiety (Freeman et al., 2001; Freeman et al., 2007) and both positive and negative symptoms (Depp et al., 2011).

Correlations were not found, however, between the other two subscales and PANSS items, suggesting these response styles were not related to symptom severity. This could be because any strategy could be helpful or unhelpful depending on how it is used, by whom
and other contextual factors. The coping model presented by Lazarus and Folkman (1984) allows for this flexibility as it takes into account the relationship between the person and their environment and, therefore, responses can change both across and within situations (Lazarus and Folkman, 1984). Therefore, any particular response in itself cannot be considered helpful or unhelpful without these contextual considerations (Lazarus and Folkman, 1984). This suggests that care should be taken in clinical work to analyse individual’s responses in each situation and to take a flexible approach that acknowledges that responses are not always unhelpful. The three components found also overlap with a cognitive attentional syndrome, outlined in the Self-Regulatory Executive Function model (Wells and Matthews, 1994a) which describes a coping style involving strategies such as perseverative thinking, focus on threat cues and self-focused attention.

The long term stability of the measure was found to be low and was below the usually accepted cut-off used for test-retest reliability of 0.7 (Terwee et al., 2007). This could be a reflection of the changeable nature of responses to distress, dependent on person, place and time (Lazarus and Folkman, 1987). If responses to distress are thought of as a process in this way, then a measure of response styles may not be expected to be stable over time. In this population difficulties with sedation, memory and concentration can be observed due to high doses of clozapine and so these factors could have also had an impact. Alternatively, it is likely that nine months is too long a time frame to expect stability when the ratings are anchored in the last two weeks, even in a sample considered to be ‘treatment-resistant’.

5.5.2 Strengths and limitations

A large clinical sample of participants was used, suggesting that results should be generalizable within this population. The sample was also randomly separated into one sample of 287 and one of 200, and the same factor structure was supported in both samples.

Following the CFA, some of the fit indices were found to be below the generally accepted cut-off. This could suggest that some further refinement of the subscales is required.
As the components found here show overlap with the Thought Control Questionnaire (Wells and Davies, 1994), it is a limitation that this measure was not used to assess incremental validity; however, the TCQ was developed in non-clinical participants and our measure was developed using a large clinical sample.

Use of symptom measures for convergent validity could create a problem as responses to symptoms could be confounded by symptom severity. However, the concepts chosen were theoretically expected to be related (Bowling, 2014). It would have been useful to include a validated measure of coping for further convergent validity and have a shorter test-retest timeframe. However, balancing participant burden and minimising attrition in clinical trials meant that this was not possible.

Finally, as this sample is a chronic and stable population, further validation in different clinical populations is required (e.g. first episode psychosis). Due to the lack of diversity in this sample it cannot be concluded that the response styles identified here are generalizable to all people with experience of psychosis. Further validation in non-clinical samples would also be beneficial to determine if such responses are specific to psychosis or, as has been found in previous research on safety seeking, whether such responses exist on a continuum (Gaynor et al., 2013).

5.5.3 Implications

These preliminary results indicate that The MCR could be a reliable and valid measure that could be used in clinical work to identify and monitor responses used to manage distress in people with psychosis. The results suggest that the measure might be best employed as a situational measure, allowing analysis of response styles in specific contexts in clinical work. More research is needed on whether, or under what circumstances, responses can be considered to be helpful or unhelpful. Future research with the MCR should aim to further demonstrate convergent validity through assessing associations with measures of coping and to check the component structure in different psychosis populations. Beyond this, research could focus on whether The MCR is sensitive to response to treatment and if it relates to concepts of recovery, such as quality of life or functioning. Further understanding
of this complex relationship could advance therapeutic work with people experiencing
distressing psychosis.
Chapter 6: Study 3 - The relationship between cognitive and metacognitive beliefs and responses to voice hearing: an analysis using structural equation modelling

The following paper is under review for publication in *Schizophrenia Bulletin*
The relationship between cognitive and metacognitive beliefs and responses to voice hearing: an analysis using structural equation modelling

Running title: Beliefs and responses to voice hearing

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6.1 Abstract

Cognitive models of auditory hallucinations emphasise the importance of appraisals of unusual experiences, emotional and behavioural responses in maintaining voice hearing experiences. Appraisals have been found to interact with responses and distress. In contrast to this, a metacognitive approach to understanding psychological difficulties argues that it is not the content of thoughts that is significant, but rather the process and appraisal of cognition. An integrative approach to understanding psychosis that incorporates both cognitive and metacognitive beliefs has also been proposed. This study uses Structural Equation Modelling (SEM) to test an integrated cognitive and metacognitive model of voice hearing and to examine both cognitive (schemas) and metacognitive (meta-worry) factors as mediators of the relationship between responses to voices and negative affect. 487 participants with a diagnosis of schizophrenia completed measures of psychosis, cognitive and metacognitive beliefs, negative affect and responses. It was found that voice hearing significantly predicted cognitive and metacognitive beliefs but not negative affect or responses. However, cognitive and metacognitive beliefs were found to predict both negative affect and responses. To examine this relationship more closely, mediation analysis was conducted investigating the impact of cognitive and metacognitive beliefs on the relationship between responses and negative affect. It was found that cognitive and metacognitive beliefs both provided mediation of the relationship. These findings support models of psychosis that highlight the importance of both cognitive and metacognitive beliefs in producing certain emotional and behavioural responses and also for the role that responses can play in maintaining such beliefs. Implications for clinical practice and future research are considered.

Safety seeking behaviours; schemas; meta-worry; psychosis; schizophrenia
6.2 Introduction

Cognitive models of auditory hallucinations emphasise the importance of appraisals of unusual experiences, distress and behavioural responses in maintaining voice hearing experiences (Chadwick and Birchwood, 1994; Morrison, 1998). It is suggested that it is the appraisal of such experiences that determines the emotional and behavioural responses to it. For example, appraisals relating to threat or danger are likely to result in distress and certain responses intended to prevent the threat from occurring (referred to as safety seeking behaviours, Morrison, 1998). Such safety seeking behaviours are hypothesised to reduce distress in the short term but to maintain it in the longer term, as threat appraisals are not disconfirmed (Salkovskis, 1991).

It has been found that people experiencing psychosis commonly use safety seeking responses, and that these are related to anxiety, distress and appraisals as would be expected (Freeman et al., 2001; Gaynor et al., 2013; Hacker et al., 2008).

For example, voices appraised as malevolent have consistently been associated with resistance response styles whereas benevolent voices are found to be engaged with by the voice hearer (Chadwick and Birchwood, 1995; Chadwick et al., 2000). Malevolent voices (and resistance response styles) are also associated with higher distress levels (Chadwick et al., 2000; Soppitt and Birchwood, 1997).

Previous research has demonstrated the importance of both safety seeking behaviours and threat appraisals in the experience of psychosis. For example, a comparison of two groups of participants with equivalent levels of unusual experiences showed that those with a need for care scored significantly higher on both threat appraisals and use of safety seeking responses than those without a need for care (Gaynor et al., 2013). Further, it was found that the relationship between safety seeking behaviours and both distress related to unusual experiences and anxiety was mediated by threat appraisals. This was not true for depression, which was not predicted by threat appraisals (Gaynor et al., 2013). Similarly, the relationship between safety seeking and distress has been found to be mediated by beliefs about voice omnipotence (Hacker et al., 2008). This highlights the importance of
appraisals in cognitive models of psychosis and suggests safety seeking responses could be maintaining threat appraisals as predicted.

It has been shown that people experiencing psychosis hold more highly negative views of both themselves and others than non-clinical samples and that such negative evaluations are associated with paranoia in a non-clinical sample (Fowler et al., 2006). In cognitive models of psychosis, it is suggested that such beliefs about the self and others are important (Freeman et al., 2002; Garety et al., 2001; Morrison, 2001). When attributing meaning to an unusual experience, these beliefs are likely to be influential so that if the individual believes that they are vulnerable and others are dangerous, an attribution that is persecutory in content is more likely (Freeman et al., 2002). Similarly, negative views about the self and others are often reflected in critical, insulting or powerful voices (Birchwood et al., 2004). In support of this, Close and Garety (1998) found that, in a sample of voice hearers, low self-esteem and negative appraisals of the self in relation to the voice were common. They propose that the experience of hearing voices could serve to activate negative self-schemas, leading to emotional and behavioural responses. Negative beliefs about the self could then be strengthened due to certain factors, such as perceived lack of control over the voice emphasising feelings of inadequacy (Close and Garety, 1998). Findings such as this have led to the suggestion that social schemas could mediate the relationship between voices, distress and response styles (Paulik, 2012).

In contrast to this, a metacognitive approach to understanding psychological difficulties argues that it is not the content of thoughts that is significant, but rather the regulation of cognition and the appraisal of cognition. The S-REF model suggests that the experience of distress is associated with a CAS which is characterised by biases in attention (threat monitoring), extended processing (e.g. worry) and activation of metacognitive beliefs (Wells and Matthews, 1994a). If the CAS is activated, this prolongs negative processing and arousal and can lead to psychological difficulties. Conflicting metacognitive beliefs, such as believing that worry helps to solve problems but also that it is dangerous, can serve to maintain difficulties (Wells and Matthews, 1994a). Therefore, it is threat monitoring, beliefs about worry (i.e. meta-worry) and extended processing, rather than the content of appraisals
that is significant in the model. The metacognitive model has been applied to the experience of psychosis (Hutton et al., 2014). An initial worrying thought, such as about hearing a threatening voice, can be maintained due to positive beliefs about worry (e.g. “worrying helps me cope”). Worry about the worry (e.g. “I'll drive myself crazy with worry”) can then intensify distress and contribute to feelings of threat (Hutton et al., 2014). These metacognitive beliefs about worry may lead to responses intended to try and control thoughts which backfire, heighten distress and prevent disconfirmation of metacognitive beliefs (Wells and Matthews, 1994a).

A recent meta-analysis has found that levels of unhelpful metacognitive beliefs, such as positive beliefs about worry and negative beliefs about uncontrollability and danger, are higher in participants experiencing psychosis than a non-clinical sample (Sellers et al., 2016). However, few differences were observed in comparison to a group with other emotional disorders (Sellers et al., 2016). This suggests that elevated levels of unhelpful metacognitions are associated with emotional distress in general, rather than being psychosis specific (Sellers et al., 2016).

A model that integrates both cognitive and metacognitive appraisals in the maintenance of psychotic experiences has also been proposed (Morrison, 2001). Therefore, in this model, it is suggested that interpretations of intrusions can lead to distress as outlined above but also suggests that such interpretations are determined by metacognitive beliefs about the meaning of intrusive experiences and by schematic beliefs about the self and others (Morrison, 2001). Intrusions and associated appraisals and beliefs can then be maintained by factors such as cognitive and behavioural responses, with the specific selection of responses being determined by procedural metacognitive beliefs (Morrison, 2001).

In the present study, we used SEM to test relationships between different components of an integrative model of voice hearing. SEM is used to test hypotheses relating to causal associations between variables (Byrne, 2016). Although SEM is a complex approach, it has advantages over other methodologies such as regression, including that within an SEM model, error terms are included in the model (Byrne, 2016), which increases the accuracy of the estimates produced (Hair et al., 2014).
A previous SEM study of voice hearers has been conducted (Birchwood et al., 2004). This study found that beliefs about the self and others were predictive of factors relating to the voice and depression (Birchwood et al., 2004). Specifically, it was found that viewing others as more powerful predicted voices also being seen as powerful and greater feelings of depression. Low self-esteem also predicted greater depression as well as a greater frequency of voices. Finally, more powerful voices were associated with greater voice frequency (Birchwood et al., 2004).

To our knowledge, there has not been a study that has tested an integrated model of voice hearing that combined cognitive and metacognitive factors. Therefore, the initial aim was to investigate whether the data would fit the cognitive and metacognitive framework of voice hearing. The secondary aim was to then explore whether cognitive (schemas) and metacognitive (meta-worry) beliefs mediate the relationship between responses to voices and negative affect.

6.3 Method

6.3.1 Participants

Participants were 487 individuals who were all recruited as part of a separate clinical trial examining the effectiveness of CBT for clozapine resistant schizophrenia (The FOCUS Trial, ISRCTN99672552). All participants were therefore either currently taking clozapine at 400mg or above (unless this dose had been restricted due to tolerability) or had discontinued clozapine in the past two years due to tolerability or lack of efficacy. All participants were help seeking and were required to score a minimum total score of 58 on the PANSS as well as 4 or more for either delusions or hallucinations or 5 or more for suspiciousness or grandiosity. They all had an identified care coordinator or consultant Psychiatrist and had not received CBT in the past 12 months. Exclusion criteria were a primary diagnosis of substance or alcohol dependence, diagnosis of developmental disability, organic impairment and non-English speaking. The trial was approved by the National Research Ethics Committee (NRES Committee Northwest-Lancaster, 12/NW/0520) on 13th August 2012.
Participants were recruited from five sites across the UK (Manchester, Southampton, Newcastle, Glasgow and Edinburgh). 392 participants (80.49%) scored 4 or above on PANSS hallucinations and were classed as voice hearers for the purpose of the present study.

The sample characteristics can be seen in Table 7.

6.3.2 Measures

The PANSS (Kay et al., 1987) is a semi-structured interview consisting of thirty items intended to assess the severity of symptoms associated with psychosis. Seven items assess positive symptoms such as hallucinations and delusions, seven items assess negative symptoms such as blunted affect and emotional withdrawal and 16 items assess general psychopathology such as anxiety and depression. All items are scored between 1 (absent) and 7 (extreme). The PANSS is considered to be a reliable and valid measure (Kay et al., 1988). The depression subscale score was used here which is comprised of depression, anxiety and guilt feelings (Lancon et al., 2000). The Cronbach’s alpha of this scale in the present sample was 0.56.

The PSYRATS (Haddock et al., 1999) is a semi-structured interview consisting of 12 items assessing aspects of voice hearing and six items assessing aspects of unusual beliefs. All items are scored from 0 to 4, with higher scores indicating greater severity. The voice hearing subscale relating to physical aspects was used here. This is comprised of frequency, duration, location and loudness of the voice ($\alpha = 0.67$).

The CDSS (Addington et al., 1992) is a structured interview measure with nine items. The items include assessment of hopelessness, feelings of guilt and suicidal ideation. For each section the assessor can score the client between a score of 0 (absent) and 3 (severe). Therefore, possible scores range from 0 to 27 ($\alpha = 0.77$).
Table 7: Study three sample characteristics

<table>
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<tr>
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<td>2</td>
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<tr>
<td>Mixed – White and Black Caribbean</td>
<td>7</td>
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<td>Mixed - other</td>
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<td>Other ethnic group</td>
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<tr>
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<tr>
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<table>
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<tbody>
<tr>
<td>Mean (SD)</td>
<td>229.17 (125.00)</td>
</tr>
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</table>
The AnTI (Wells, 1994) is a 22 item self-report questionnaire designed to measure aspects of worry. Each question is scored from 1 (almost never) to 4 (almost always). The measure has a three factor structure comprising of social worry, health worry and meta-worry. For this study only the 7 item meta-worry scale was used. This sub-scale includes questions such as “I worry that I cannot control my thoughts as well as I would like to” (α = 0.83).

The BCSS (Fowler et al., 2006) is a 24 item measure assessing beliefs about self and others. It consists of four subscales, positive beliefs about self (α = 0.84), negative beliefs about self (α = 0.85), positive beliefs about others (α = 0.87) and negative beliefs about others (α = 0.90). Participants’ respond to a yes / no question about whether they endorse each belief and then, if it is a yes, they state how much they believe this using a scale from 1 (believe it slightly) to 4 (believe it totally).

The MCR (Tully et al., 2016) is a measure of response styles used when distressed such as “I avoid doing certain things or going to certain places”. Participants were asked to rate how frequently they used each response using a scale ranging from 1 (never) to 4 (almost always). The MCR has three subscales; threat monitoring and avoidance (α = 0.70), social control and reassurance seeking (α = 0.73), and conscious self-regulation attempts (α = 0.68).

6.3.3 Procedure
The results reported here are taken from measures given at the baseline assessment for the FOCUS Trial. These measures were completed as part of a battery of other measures not used in the present analysis. All participants provided fully informed consent to take part in the FOCUS Trial. Assessments lasted one to two hours and the majority were conducted in the participants’ own homes. Participants were paid £10 for completion of this assessment.

6.3.4 Statistical analyses
SEM was conducted using AMOS version 22. Missing data was replaced with the mean for each item. Measurement models were specified for each of the following components, voice
hearing, cognitive and metacognitive beliefs, responses and negative affect. The voice hearing latent variable was created using the PSYRATS physical subscale. Responses to voices were specified using the three MCR subscales. Negative affect was represented by the PANSS anxiety and depression subscale and the total CDSS score. A combined cognitive and metacognitive beliefs latent variable was modelled using the total BCSS score as well as the total AnTI meta-worry score for testing together in one integrated model. The model would predict that voice hearing experiences would activate cognitive and metacognitive beliefs which in turn would predict responses and negative affect (Morrison, 2001) and so these regression lines were used in the model. Regression pathways were also added between negative affect and responses and voice hearing and responses. The relationship directly between voice hearing and negative affect was also investigated, which would be predicted by Morrison’s (2001) model to be non-significant.

A sensitivity analysis was also conducted using data just from the proportion of the sample classed as voice hearers.

In order to look more closely at the role of meta-worry and schemas in relation to responses and negative affect, a further mediation model was specified. Correlations were analysed between each of the MCR subscales and the anxiety and depression subscale of the PANSS and the CDSS total. It was found that social control and reassurance seeking and conscious self-regulation did not correlate with these but significant positive correlations were found with the threat monitoring and avoidance subscale. Therefore, this subscale only was used for this analysis. In order to test for mediation, initially a regression of the outcome on the independent variable is tested. Next, a regression of the mediating variable on the independent variable is tested and finally the outcome is regressed on both the independent and mediating variables. Using AMOS the latter two steps can be conducted simultaneously. A statistically significant indirect effect indicates that full mediation is present or if the relationship between the independent variable and outcome is no longer significant in the presence of the mediator. If this relationship is reduced but remains significant, then partial mediation is present. Bootstrapping with 2000 samples was conducted to estimate the standard error and 95% confidence interval for each analysis.
Therefore, model one tested the relationship between threat monitoring and avoidance and negative affect. Each mediator was then tested in turn. Model two added meta-worry as a mediator and model three replaced meta-worry with schematic beliefs as a mediator.

The following fit indices were used to evaluate the models. The chi-square, the normed chi-square, the GFI, TLI, CFI, RMSEA and SRMR.

6.4 Results

6.4.1 Overall model fit

Each part of the model was added in turn and modified as indicated using the modification indices. The error terms between location and loudness of voices were allowed to correlate as well as the conscious self-regulation and social control subscale error terms. The final model can be seen in Figure 7.

The model was found to be significant, indicating poor fit ($\chi^2 (36) = 95.62, p = 0.000$). However, this can be as a result of a large sample size. Good fit is indicated by CMIN/DF of less than 3, RMSEA below 0.06, GFI, CFI and TLI above 0.95, and SRMR below 0.08. Here, the results were as follows: CMIN / DF = 2.656, RMSEA = 0.058, GFI = 0.966, CFI = 0.969, TLI = 0.953 and SRMR = 0.0541. Therefore, all fit indices demonstrated good fit of the model.

In terms of the regression weights, it was found that the path between voices and cognitive and metacognitive beliefs was significant, with a standardised regression weight of 0.32. As expected, the path between voices and negative affect was not significant (0.004) but between beliefs and negative affect was (0.70). The path between beliefs and response was also significant (0.79) but was not between voices and responses (-0.09) or between negative affect and responses (-0.10).
Figure 7: An integrative cognitive and metacognitive model of voice hearing
6.4.2 Sensitivity analysis

Using data just from the voice hearers, the model was re-run and the result produced was equivalent.

6.4.3 Mediation model

Firstly, the relationship between the threat monitoring and avoidance response style and negative affect was analysed. This was found to be a well-fitting model and the regression path was significant with a standardised estimate of 0.51.

Secondly, it was found that the addition of meta-worry in to the model reduced the relationship between threat monitoring and negative affect from 0.51 to 0.18, although this remained significant (95% CI 0.02 – 0.35, p = 0.04). The standardised indirect effect was found to be significant (0.33, 95% CI 0.23 – 0.47, p < 0.001).

Thirdly, it was found that replacing meta-worry with schemas in the model reduced the relationship between threat monitoring and negative affect from 0.51 to -0.05 and this was no longer significant (95% CI -0.37 – 0.16, p = 0.70). The standardised indirect effect was again found to be significant (0.56, 95% CI 0.39 – 0.91, p < 0.001).

As a final step, both meta-worry and schematic beliefs were entered into a multiple mediation model. This was to investigate the impact of each mediator on negative affect as well as the direct effect of threat monitoring and avoidance.

Combining these two models together produced a well-fitting model ($\chi^2$ (123) = 232.84, p = 0.000, CMIN/DF = 1.89, GFI = 0.950, TLI = 0.952, CFI = 0.961, RMSEA = 0.043, SRMR = 0.0427). The relationship between threat monitoring and negative affect was no longer significant at -0.29 (95% CI -0.86 – 0.004, p = 0.054). The standardised indirect effect was significant (0.85, 95% CI 0.58 – 1.41, p < 0.001). All other pathways were also significant. The standardised regression weights and full model can be seen in Figure 8.
Figure 8: Mediation model
6.5 Discussion

An integrative cognitive and metacognitive model of voice hearing was tested using SEM. It was found that the data provided a good fit of the model with voice hearing predicting cognitive and metacognitive beliefs and such beliefs predicting responses and negative affect as expected. Further, voice hearing did not directly predict negative affect, again in line with predictions. It was also found that voice hearing and negative affect did not directly predict responses; this was only predicted by beliefs.

The relationship between responses, negative affect and cognitive and metacognitive beliefs was investigated further using a mediation analysis. It was found that schematic beliefs and meta-worry mediated the relationship between a threat monitoring and avoidance response style and negative affect.

This is consistent with cognitive, metacognitive and integrative accounts of voice hearing and safety seeking responses. Cognitive models suggest that safety seeking responses arise not as a result of the distress itself but instead as a result of catastrophic misinterpretations of a situation or intrusion (Garety et al., 2001; Morrison, 2001). Such responses may subsequently maintain appraisals as they do not allow opportunities for disconfirmation. Metacognitive approaches implicate extended processing such as meta-worry in the formation and maintenance of distress (Wells and Matthews, 1994a).

Responses selected on the basis of metacognitive beliefs about the need to control thoughts may backfire and strengthen beliefs about uncontrollability and danger (Wells and Matthews, 1994a).

Previous research has similarly found relationships between appraisals of voice power and resistance response styles (Chadwick et al., 2000) and between meta-worry and distress related to voice hearing (Morrison and Wells, 2007). Further, previous research has also found that the relationship between safety seeking behaviours and both distress related to unusual experiences and anxiety was mediated by threat appraisals (Gaynor et al., 2013). However, these authors found that depression was not predicted by threat appraisals (Gaynor et al., 2013), which contrasts with our findings.
We found that schematic beliefs about the self and others mediated the relationship between response and negative affect, which is consistent with previous research that has found such beliefs to be important in both paranoia (Freeman et al., 2002) and voice hearing (Close and Garety, 1998).

Meta-worry also provided mediation, although to a lesser extent. The regression weights indicated that the relationship between meta-worry and negative affect was not as strong as the relationship between schemas and negative affect. As our negative affect latent variable was composed largely of depression items, it is possible that this influenced these findings. As meta-worry has been primarily associated with anxiety (Wells, 1995), using a latent variable more related to anxiety constructs could have produced a stronger relationship. Similarly, inclusion of a measure of voice-related distress could have strengthened the relationship since this association with meta-worry has previously been found (Morrison and Wells, 2007). Alternatively, it could be that other metacognitive appraisals would be more closely related to voice-hearing and distress, such as beliefs about uncontrollability and danger of thoughts (Morrison and Baker, 2000).

A strength of this work is that it was conducted in a large clinical sample that was relatively homogeneous allowing for generalisations to be made. However, it is also a weakness that there was a lack of diversity in the sample. This could mean that results are less applicable to other samples, such as early intervention clients. It is a further limitation that causal relations cannot be assumed due to the fact that data is cross sectional.

Future research could aim to extend these findings to investigate the relationship between responses, distress and unusual beliefs such as paranoia. Replication of these results in a different population, such as a first episode sample, would also help to identify the specificity of these findings. Analysis of longitudinal data would allow for causal inferences to be made which would have implications for clinical practice, for instance, if certain responses were found to be predictive of distress at follow up. Finally, further investigation could focus on comparing different distress outcomes, such as anxiety, depression and distress related to unusual experiences.
The clinical implications arising from these findings are that working directly with coping responses may not be sufficient to reduce distress. Rather responses should be tackled in combination with both cognitive and metacognitive beliefs. Similarly, as the experience of voice hearing does not itself appear to directly lead to distress; targeting voices directly in therapy may not be productive and trying to eliminate voices may not be an appropriate goal. Working on improving self-esteem and perceived social rank in relation to both others and voices could be an effective approach. Process orientated strategies aiming to reduce worries regarding the uncontrollability and danger associated with negative thinking could also be helpful.

This study highlights the importance of working on both cognitive and metacognitive beliefs to improve coping and reduce distress. Responses could also be maintaining beliefs and so working on these two factors in combination may be the most effective approach to reducing distress for people experiencing psychosis.
Chapter 7: Study four - Attentional Avoidance Increases Voice Hearing in an Analogue Task in People with Psychosis: An Experimental Study

The following paper is under review for publication in Psychiatry Research
Attentional Avoidance Increases Voice Hearing in an Analogue Task in People with Psychosis: An Experimental Study

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7.1 Abstract

The response styles of attentional avoidance and attentional focusing were manipulated in an analogue voice-hearing task. Predictions were that both would increase detection of words in response to an ambiguous audio recording but that attentional avoidance would lead to a greater increase relative to focusing. We also predicted that there would be a greater increase in anxiety and distress ratings in the avoidance group. Predictions were tested in a sample of 44 participants with a diagnosis of schizophrenia. Participants were randomly assigned to either attentional avoidance or focusing while listening to an ambiguous auditory task. Number of words identified and anxiety and distress were recorded. As predicted, there was an increase in the number of words identified in both groups; however, this increase was greater in the avoidance group. The prediction that there would also be an increase in anxiety and distress that would be greater in the avoidance group was not supported. Results suggest that although both response styles were unhelpful, attentional avoidance appeared particularly counterproductive and resulted in greater detection of experiences. No effect was observed on emotion; it is possible that emotional reactions relate more closely to appraisals of the voice, rather than the behavioural response.

Resistance; engagement; attention; schizophrenia
7.2 Introduction

7.2.1 Misattribution theories of voice hearing

It has been suggested that auditory hallucinations are experienced as a result of normal intrusive thoughts being misattributed to an external source (Morrison et al., 1995). Tasks such as signal detection, which require participants to pick out speech from background noise (e.g. Varese et al., 2012a), or source monitoring, which require distinguishing between words generated by themselves and others (e.g. Bendall et al., 2011), have been utilised as experimental tests of the misattribution theory. A meta-analysis of these studies found robust evidence for an association between voice hearing in both clinical and non-clinical populations and misattribution biases (Brookwell et al., 2013).

There could be several reasons why this happens, one theory being that it is an attempt to reduce cognitive dissonance (Morrison et al., 1995). Cognitive dissonance occurs when thoughts or feelings are experienced that conflict with each other, so creating a state of anxiety (Festinger, 1962). As dissonance is an uncomfortable state, active attempts are made to reduce it (Festinger, 1962). If an intrusive thought is experienced that doesn’t fit with the person’s self-concept such as a violent thought, this could produce dissonance. This dissonance can therefore be reduced by attributing the thought to an external source rather than to the self, thereby reducing the internal conflict. The likelihood of an intrusion being attributed to an external source could be influenced by metacognitive beliefs (Jones and Fernyhough, 2006). For instance, if it is believed that it is dangerous for thoughts to be out of control, then a thought experienced as intrusive may be attributed externally to reduce dissonance between the metacognitive belief and the experience (Jones and Fernyhough, 2006). In support of this theory it has been found that participants hearing voices had a more negative attitude towards intrusive thoughts and experienced them as more uncontrollable than control groups (Morrison and Baker, 2000). However, a meta-analysis has not been able to confirm these findings. The authors concluded that the association between metacognitive beliefs and hallucinatory experiences in clinical samples is not as strong as previously thought (Varese and Bentall, 2011). It is possible that the relationship is actually between metacognition and general levels of distress, rather than directly with
unusual experiences (Brett et al., 2009). It has been found that high levels of metacognitive beliefs are associated with need for care in people experiencing psychosis, demonstrating that this is an important variable in this client group (Brett et al., 2009).

Other differences that have been found between clinical and nonclinical voice hearers include voice content being more negative, a greater frequency of voices and lower feelings of control over the voice in clinical samples (Andrew et al., 2008; Daalman et al., 2011). Further, clinical voice hearers believe their voices to be more malevolent and omnipotent and respond with greater resistance whilst nonclinical voice hearers believe their voices to be benevolent and respond by engaging (Andrew et al., 2008). Consistent with this it has been found that people who hear voices but do not have a need for care report responding more mindfully to their voices and are more accepting of them than a clinical group (Peters et al., 2016). Similarly, a different sample of non-clinical voice hearers most frequently endorsed doing nothing as a coping response (Kråkvik et al., 2015). This was in contrast to a clinical sample that employed more resistant strategies such as pleading with the voice to stop talking (Kråkvik et al., 2015).

7.2.2 Responding to voices

Within cognitive models of voice hearing the appraisal of experiences is central as it is this that is likely to result in emotional and behavioural responses to the experience (e.g. Chadwick and Birchwood, 1994; Morrison et al., 1995). If the appraisal is threatening, for example, “it is the voice of the devil”, then this may illicit distress and safety seeking behaviours which may actually serve to maintain the experiences (Morrison, 2001).

The responses of resistance and engagement discussed above could be considered as safety seeking behaviours within a cognitive framework. Responses classified as resistance include trying to stop the voice or arguing with it whereas engagement includes listening to the voice and following its advice (Chadwick and Birchwood, 1994). It has been consistently found that resistance is positively related to voice malevolence and negatively to voice benevolence, while the opposite relationship is observed with the response style engagement (e.g. Chadwick et al., 2000). This suggests that behavioural response is meaningfully related to appraisal as suggested. However, findings have been less
consistent in terms of the association between response styles and distress. One study has reported that participants classified as depressed used more of both resistance and engagement than the participants considered “not depressed” (Upthegrove et al., 2014). Others have reported that resistance is positively associated with measures of distress while engagement is negatively associated with the same measures (Chadwick et al., 2000; Soppitt and Birchwood, 1997). Finally, others have found no significant relationships between these response styles and various measures of distress (Morris et al., 2014). As these studies do not control for the valence of the voice, it is difficult to interpret the effect of response style on distress as this could be confounded by the nature of the voice. However, due to the differences in response styles between clinical and nonclinical samples, this appears to warrant further investigation.

Resistance response styles could be compared to thought suppression as both include trying to stop or control an intrusion (with thought suppression, this is an intrusive thought, whereas with resistance, it is an auditory hallucination experienced as an external voice). Given the consensus that auditory hallucinations are inner speech misattributed to an external source (e.g. Bentall, 1990a), the process of thought suppression is likely to be relevant to the maintenance of voice hearing.

The effect of thought suppression has frequently been studied and consistently reported to be an unhelpful behavioural response to intrusive thoughts. One of the earliest studies of thought suppression found both an immediately unhelpful effect (initial enhancement) and also a delayed or rebound effect (Wegner et al., 1987). In relation to voice hearing, a study in a non-clinical sample using auditory material designed to induce auditory illusions, found no evidence of initial enhancement but found a delayed increase in both groups, leading them to conclude that suppression was unhelpful but not counterproductive (Rassin and Van Der Heiden, 2007).

Focusing has been studied as a treatment option for auditory hallucinations. This involves supporting the client to gradually begin to monitor their voices in terms of their physical characteristics, content, the emotions they raise and the possible meaning of the experience (Haddock et al., 1998). This could have some similarities with the response style of

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engagement as both include attending to the voice and trying to understand it. Focusing has been compared to distraction in a treatment study with follow up over two years (Haddock et al., 1998). The authors predicted that both strategies would be helpful in the management of voices but that focusing would be more effective in the long term. This prediction was made as it was thought that focusing on experiences may reduce the likelihood of misattribution to an external source occurring (Haddock et al., 1998). As predicted, participants’ receiving the focusing therapy did show an increase at follow up in the degree to which they believed their voices came from an internal source. However, there were no significant differences in distress, disruption or frequency of voices. The authors concluded that there was no distinct advantage of focusing over distraction (Haddock et al., 1998).

Difficulty arises in studying response styles such as these due to their multifaceted nature and so any effects observed could be as a result of differences in goals, motivation, strategies used or attentional focus. Similarly, experimental manipulation of responses such as resistance or engagement is difficult because their operationalisation confounds compliance/disobedience with focusing/distraction.

7.2.3 Attention

Response styles such as resistance and engagement could consist of various elements including distraction, attempts at cognitive control, threat monitoring and attentional avoidance. These response styles are implicated as part of a Cognitive Attentional Syndrome (CAS) in the Self-Regulatory Executive Function (S-REF) Model (Wells and Matthews, 1994a). This metacognitive model suggests that coping styles such as these are ineffective and can compromise effective self-regulation (Wells and Matthews, 1994a). An important dimension of self-regulation in this model is the control of attention. Psychological disorder is considered to be associated with failure to disengage processing that is caused by conflicted or paradoxical metacognitions. For example, when individuals hold both positive (e.g. “Worrying helps me cope”) and negative (e.g. “Worrying is uncontrollable”) beliefs about a thought process, effective regulation can be adversely affected. Predictions derived from the S-REF model would therefore be that resistance, suppression, engagement and focusing could all be unhelpful self-regulatory strategies because they involve extended
processing of intrusions. However, it would also be expected that resistance or suppression would be more problematic as a conflict is created: to know if experiences are being controlled effectively they need to be monitored, which goes against the goal of resisting those experiences. This conflict is not created with the engagement or focusing response styles, whilst these extend processing and could be worse than ‘doing nothing’; there is little conflict between monitoring and control of experiences.

As these response styles are multifaceted and we want to control for strategy effects, we used a novel attentional task that manipulated the specific parameter of attentional avoidance or attentional focusing.

7.2.4 Aims and hypotheses
This study aimed to investigate the effects of manipulating attentional avoidance and attentional focusing response styles in relation to voices in a clinical sample using ambiguous auditory stimuli (so that the effects of the response styles could be assessed independently of voice valence). Specifically, we aimed to test the effect of attentional avoidance and focusing on distress and incidence of intrusions.

Predictions derived from the S-REF model were that participants in the attentional avoidance condition would hear more words whilst listening to an ambiguous audio recording compared to an attentional focusing group. However, it was expected that there would be an increase in both the avoidance and focusing groups due to the facilitation of extended processing. Our secondary prediction was that there would be an increase in anxiety and distress ratings in both groups but that this increase would be greater in the attentional avoidance group.

7.3 Method

7.3.1 Participants
A power calculation was conducted which determined that 44 participants would be needed (22 in each group) to have a 90% chance of detecting, as significant at the 5% level, an increase of 10 points in the primary outcome.

Therefore, 44 individuals were recruited from mental health services in the North West of England. Inclusion criteria were a schizophrenia spectrum diagnosis, aged sixteen or above
and in regular contact with a health professional (psychiatrist, care coordinator or GP). Exclusion criteria were a primary diagnosis of substance or alcohol dependence, diagnosis of developmental disability, organic impairment and non-English speaking. Informed consent was obtained from all participants.

The sample characteristics can be seen in Table 8.

### 7.3.2 Measures

*The Beliefs about Voices Questionnaire (BAVQ-R, Chadwick et al., 2000)* is a 35 item self-report measure with three sections. These are beliefs about voices (malevolence, benevolence and omnipotence), emotional reactions and behavioural reactions (resistance and engagement). Participants respond using a four point scale, ranging from disagree to strongly agree. Participants are asked to answer in relation to the voice they consider dominant if more than one voice is present. This measure was completed only by participants who had heard voices over the past week. Participants were additionally asked if they had heard voices over the past six weeks to determine voice hearing status for this study.

*The Thought Control Questionnaire (TCQ, Wells and Davies, 1994)* is intended to measure the strategies that are used as an attempt to control unpleasant thoughts. It is a self-report measure consisting of 30 items that are responded to on a four point scale from never to almost always. It has five subscales labelled distraction, social control, worry, punishment and reappraisal.

*The Metacognitions Questionnaire (MCQ, Wells and Cartwright-Hatton, 2004)* was designed to measure aspects of metacognitive beliefs and monitoring strategies. The shortened 30 item version was used here. The measure consists of 5 factors which are cognitive confidence, positive beliefs about worry, cognitive self-consciousness, negative beliefs about uncontrollability of thoughts and danger, and beliefs about need to control thoughts.
Table 8: Study four sample characteristics

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| Gender    | Male: 29 | Female: 15 |

| Ethnicity | White British: 38 | Asian Indian: 1 | Black other: 1 | Mixed – White and Black Caribbean: 2 | Other ethnic group: 2 |

| Diagnosis | Schizophrenia: 23 | Paranoid schizophrenia: 17 | Schizoaffective disorder: 4 |

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<thead>
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<th>Years in Education</th>
<th>Mean (SD)</th>
<th>Range</th>
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<td></td>
<td>12.55 (2.41)</td>
<td>10 - 19</td>
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</table>

| Hearing voices | Yes: 37 | No: 7 |

**Visual Analogue Scales (VAS):** Participants were asked to rate out of 100 their levels of anxiety and distress using two separate VAS. These were provided at baseline to say how anxious or distressed they currently felt. The same scales were completed again after the first play of the audio task (anxiety one and distress one) and the second play of the audio (anxiety two and distress two), to say how anxious or distressed they had felt during the task. 0 was described as not at all anxious or distressed and 100 as the most anxious or distressed they could possibly feel. After the first task, participants were asked to rate how much they had felt able to follow their instructions during the task. 0 was “I was not focusing on the words at all and stopped myself listening out for them” and 100 “I completely focused on the words and listened out for them”. After the first audio task participants were asked to estimate how many words they thought they heard during the task whilst during the second audio task, they were asked to note down any words they heard.

**7.3.3 Auditory task**

All participants listened to the same ambiguous auditory task. This was a recording of voices with randomly spliced one second sections played backwards as described by Feelgood and Rantzen (1994). It has been found that use of this stimulus can cause
participants scoring highly on a measure of susceptibility to hearing voices, to hear words and phrases in the tape when in fact none are present (Feelgood and Rantzen, 1994). The recording was five minutes in length and participants were asked to listen to it twice. It was decided to use an analogue task due to the fact that not all participants were current voice hearers. It would have also been difficult to accurately determine the level of voice hearing at the time of the task. Similar analogue tasks have previously been successfully used in clinical samples (e.g. Johns et al., 2001; Ward et al., 2014).

7.3.4 Procedure

The majority of the participants were tested in their own homes where they were living independently with the exception of four who were in supported housing. One participant was tested in service and two were currently inpatients and so seen on the ward.

Participants firstly completed the three measures as well as the ratings of baseline anxiety and distress.

Participants were then randomised to the attentional avoidance group or the attentional focusing group. Randomisation was conducted using opaque sealed envelopes and was stratified by voice hearing status. Some envelopes contained six randomisation slips and others eight; the researcher did not know how many were in each envelope and therefore was less likely to be able to guess the allocation that was coming next. Each envelope contained an equal number of each response style, avoidance and focusing (i.e. 3 or 4 of each).

The attentional avoidance group were given the following instructions:
“You are going to be asked to listen to 5 minutes of a recording of random noise. Sometimes people hear words during the recording. While you are listening to the recording please try not to focus on any words you may hear and stop yourself from listening out for them as much as possible.”

The attentional focusing group were given the following instructions:
“You are going to be asked to listen to 5 minutes of a recording of random noise. Sometimes people hear words during the recording. While you are listening to the recording please try and focus on any words you may hear and listen out for them as much as possible.”

All participants then listened to the five minute audio recording as described above for the first time. After listening to the tape they rated how anxious (anxiety one) and distressed (distress one) they had felt during the task, how much they had felt able to follow their instructions and also estimated how many words they had heard.

The same recording was then played again but this time participants were asked to make a note of any words they heard while they were listening to the recording. Following this, anxiety (anxiety two) and distress (distress two) during the task were rated again. One participant in the attentional avoidance group withdrew prior to the second play of the audio recording and so data for one person is missing for anxiety two, distress two and the number of words identified at time two.

Participants were then debriefed and paid £10 for their time.

### 7.3.5 Statistical analysis

Data was checked for normality. It was found that the number of words identified variable was significantly skewed in both groups. The manipulation check was also significantly skewed in the focusing group. To correct for this, an outlier was removed and data for the number of words identified was transformed using a log transformation. Levene’s test determined that that the variance was equal across groups. Repeated measures ANOVA or ANCOVA were conducted to test for both differences between groups and within groups over time for the number of words identified, anxiety and distress. Baseline scores for anxiety and distress were added as covariates. The covariate must not be different across groups and so this was initially checked using a t-test and was found to be not significant in each case. Analysis was conducted using SPSS (version 22).
7.4 Results

7.4.1 Baseline characteristics

The characteristics of each group can be seen in Table 9. 23 people were randomised to the attentional avoidance group and 21 to the attentional focusing group.

7.4.2 Manipulation check

Using the rating participants gave of how much they felt able to follow their instructions, the group manipulation was checked. A score closer to 100 indicated that participants were focusing on the words and listening out for them whereas scores closer to 0 indicated that they were not focusing on the words at all and stopping themselves from listening out for them. The mean for the attentional focusing group was found to be 68.20 (SD 25.11) and for the attentional avoidance group, 38.70 (SD 24.92). As the data for the focusing group was found to be skewed for this measure, a non-parametric test was used. A significant difference between the groups was found \( (U = 389, p < 0.001) \). To check that both groups had felt equally as able to follow their instructions, the manipulation check measure was re-coded so that a score of 50 (the mid-point of the scale) became 0. This meant, for example, that participants who gave ratings of 40 or 60 were both recoded as 10. The mean score for the avoidance group was 22.17 and for the focusing group 25.81. No significant difference was found between these scores \( (t (42) = -0.75, p = 0.46) \).

7.4.3 Words identified

As can be seen in Table 10, there was an increase in words identified at time two in both groups. As predicted, this increase appeared to be greater in the avoidance group. A repeated measures ANOVA was used to examine the change in words identified over time. This was found to be significant \( (F(1, 41) = 54.85, p < 0.001) \). A significant group x time interaction was also found \( (F(1, 41) = 6.86, p < 0.01) \), indicating that the avoidance group reported a greater increase in the frequency of voices heard compared with the focusing group.
Table 9: Baseline characteristics of the two groups

<table>
<thead>
<tr>
<th></th>
<th>Attentional Avoidance</th>
<th>N</th>
<th>Attentional Focusing</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>42.96 (10.45)</td>
<td>23</td>
<td>47.19 (11.24)</td>
<td>21</td>
</tr>
<tr>
<td>Range</td>
<td>28 - 67</td>
<td></td>
<td>30 - 73</td>
<td></td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>17</td>
<td>23</td>
<td>12</td>
<td>21</td>
</tr>
<tr>
<td>Female</td>
<td>6</td>
<td></td>
<td>9</td>
<td></td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White British</td>
<td>20</td>
<td>23</td>
<td>18</td>
<td>21</td>
</tr>
<tr>
<td>Asian Indian</td>
<td>0</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Black other</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Mixed – White and Black Caribbean</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Other ethnic group</td>
<td>2</td>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>Diagnosis</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>10</td>
<td>23</td>
<td>13</td>
<td>21</td>
</tr>
<tr>
<td>Paranoid schizophrenia</td>
<td>12</td>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Schizoaffective disorder</td>
<td>1</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Years in Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>12.68 (2.19)</td>
<td>22</td>
<td>12.40 (2.68)</td>
<td>20</td>
</tr>
<tr>
<td>Range</td>
<td>10 - 18</td>
<td></td>
<td>10 - 19</td>
<td></td>
</tr>
<tr>
<td><strong>Hearing Voices</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>19</td>
<td>23</td>
<td>18</td>
<td>21</td>
</tr>
<tr>
<td>No</td>
<td>4</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>BAVQ mean score</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resistance</td>
<td>2.56</td>
<td>18</td>
<td>2.96</td>
<td>17</td>
</tr>
<tr>
<td>Engagement</td>
<td>1.81</td>
<td></td>
<td>1.75</td>
<td></td>
</tr>
<tr>
<td>Malevolence</td>
<td>2.12</td>
<td></td>
<td>2.79</td>
<td></td>
</tr>
<tr>
<td>Benevolence</td>
<td>1.72</td>
<td></td>
<td>1.40</td>
<td></td>
</tr>
<tr>
<td>Omnipotence</td>
<td>2.52</td>
<td></td>
<td>2.95</td>
<td></td>
</tr>
<tr>
<td><strong>TCQ mean score</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distraction</td>
<td>2.30</td>
<td>23</td>
<td>2.28</td>
<td>21</td>
</tr>
<tr>
<td>Social control</td>
<td>1.80</td>
<td></td>
<td>2.05</td>
<td></td>
</tr>
<tr>
<td>Worry</td>
<td>2.04</td>
<td></td>
<td>2.07</td>
<td></td>
</tr>
<tr>
<td>Punishment</td>
<td>1.86</td>
<td></td>
<td>2.01</td>
<td></td>
</tr>
<tr>
<td>Reappraisal</td>
<td>2.13</td>
<td></td>
<td>2.19</td>
<td></td>
</tr>
<tr>
<td><strong>MCQ mean score</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognitive confidence</td>
<td>2.19</td>
<td>22</td>
<td>2.36</td>
<td>20</td>
</tr>
<tr>
<td>Positive beliefs about worry</td>
<td>1.59</td>
<td></td>
<td>1.43</td>
<td></td>
</tr>
<tr>
<td>Cognitive self-</td>
<td>2.51</td>
<td></td>
<td>2.42</td>
<td></td>
</tr>
<tr>
<td>consciousness</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative beliefs about uncontrollability of thoughts</td>
<td>2.89</td>
<td>2.73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beliefs about need to control thoughts</td>
<td>2.34</td>
<td>2.50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A sensitivity analysis was conducted in the voice hearers only and the change in words identified over time remained significant ($F (1, 34) = 67.26, p < 0.000$). As did the group x time interaction ($F (1, 34) = 12.97, p < 0.001$).

### 7.4.4 Anxiety

The mean anxiety scores for each group at baseline and after the two tasks are presented in Table 10. As can be seen there was a trend for scores in the avoidance group to decrease over the two time points. In the focusing group, there was an initial increase in anxiety one and then a decrease in anxiety two. There was no difference in anxiety level between the two groups at baseline ($t (42) = 0.174, p = 0.86$). A repeated measures ANCOVA was used to examine change in anxiety ratings over time while controlling for baseline anxiety. There was no significant difference in anxiety scores ($F (1, 40) = 1.23, p = 0.27$) and no anxiety x group interaction ($F (1, 40) = 0.39, p = 0.54$)

### 7.4.5 Distress

The mean distress scores for each group at baseline and after the two tasks are also presented in Table 10. As can be seen, there was no change in scores in either group across the two time points. There was no difference in distress level between the two groups at baseline ($t (42) = 0.316, p = 0.753$). A repeated measures ANCOVA was used to examine change in distress ratings over time while controlling for baseline distress. There was no significant difference in distress scores ($F (1, 40) = 0.63, p = 0.43$) and no distress x group interaction ($F (1, 40) = 0.52, p = 0.47$).
Table 10: Mean scores for words identified, anxiety and distress

<table>
<thead>
<tr>
<th></th>
<th>Attentional Avoidance</th>
<th>N</th>
<th>Attentional Focusing</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Words identified</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.26</td>
<td>23</td>
<td></td>
<td>6.19</td>
<td>21</td>
</tr>
<tr>
<td>17.36</td>
<td>22</td>
<td></td>
<td>11.24</td>
<td>21</td>
</tr>
<tr>
<td>Time 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Anxiety</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>48.70</td>
<td>23</td>
<td></td>
<td>47.33</td>
<td>21</td>
</tr>
<tr>
<td>Anxiety 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>43.30</td>
<td>23</td>
<td></td>
<td>48.33</td>
<td>21</td>
</tr>
<tr>
<td>Anxiety 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>42.05</td>
<td>22</td>
<td></td>
<td>45.76</td>
<td>21</td>
</tr>
<tr>
<td><strong>Distress</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>39.87</td>
<td>23</td>
<td></td>
<td>37.14</td>
<td>21</td>
</tr>
<tr>
<td>Distress 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38.09</td>
<td>23</td>
<td></td>
<td>37.52</td>
<td>21</td>
</tr>
<tr>
<td>Distress 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>39.09</td>
<td>22</td>
<td></td>
<td>37.10</td>
<td>21</td>
</tr>
</tbody>
</table>

7.5 Discussion

The response styles of attentional avoidance and focusing were manipulated in a group of participants with a diagnosis of schizophrenia, whilst listening to an ambiguous auditory task. As predicted, there was an increase in the number of words identified in both groups however; this increase was greater in the attentional avoidance group. This suggests that although both response styles were unhelpful, avoidance of experiences is particularly counterproductive and can result in greater detection of experiences, in this case a greater number of words identified which was taken as an analogue for voice hearing. The secondary hypotheses, that there would also be an increase in anxiety and distress ratings that would be greater in the avoidance group, were not supported.

It is possible that emotional reactions relate more closely to the appraisal of the voice or the valence of voice content, rather than the behavioural response. The auditory stimulus used here was deliberately ambiguous in order to be able to isolate the effects of response style. Voice valence has previously been identified as an important factor in determining voice-related distress (Sommer et al., 2010) as well as in distinguishing between clinical and non-clinical populations (Daalman et al., 2011). Voice content has been hypothesised as being important in the misattribution process, as emotionally salient stimuli has been found to be experienced as less internal and less controllable than neutral stimuli (Baker and Morrison, 1998). Similarly, the importance of appraisal in relation to emotional responses to voices has been consistently replicated. For example, appraisals of malevolence and omnipotence
are consistently found to be positively associated with depression, distress and other negative emotional reactions (e.g. Beck-Sander et al., 1997; Chadwick et al., 2000; Morris et al., 2014; Soppitt and Birchwood, 1997).

Our finding is also similar to the results of Haddock et al (1998), who found that their focusing and distraction intervention did not have a significant impact on distress levels.

Both attentional avoidance and focusing could be considered unhelpful response styles in the S-REF Model (Wells and Matthews, 1994a). The model proposes that individuals employ strategies intended to manage symptoms which backfire. This is because the strategies can activate the CAS and result in extended processing and becoming locked in persistent and unhelpful thinking patterns, such as rumination (Wells and Matthews, 1994a). The instructions in this task, therefore, may have activated extended processing. A solution to this is to help a distressed individual to develop a more flexible way of responding that is in opposition to the CAS (Fisher and Wells, 2009). Teaching detached mindfulness can be a part of metacognitive therapy (MCT) and helps people to become aware of their thoughts without trying to respond to them (Fisher and Wells, 2009). There is preliminary evidence that such therapy can be helpful for people with psychosis (Hutton et al., 2014).

A review of other mindfulness based treatments has found that studies report many benefits for people experiencing psychosis, including reduced distress, increased control, improved functioning including less social withdrawal and reduced hospitalisations (Davis and Kurzban, 2012). Similarly, a more recent review found that trait mindfulness was associated with reduced distress in relation to voices and improved quality of life (Strauss et al., 2015). However, it was concluded that there were not enough randomised controlled trials available to be able to draw firm conclusions regarding efficacy and therefore further research is needed (Strauss et al., 2015).

The control of attention is an important component of self-regulation. Attentional strategies such as those employed here can be chosen as ways of coping that, as we have found, can be ineffective. A further technique of MCT can be to teach Attention Training Techniques (ATT) to intervene in CAS activity. Use of ATT can improve metacognitive control and attentional flexibility and, in so doing, reduce distress (Fisher and Wells, 2009). There is
some preliminary evidence that ATT can be used to effectively treat auditory hallucinations (Valmaggia et al., 2007).

There are several limitations of this study. Firstly, although the randomisation procedure was stratified by voice hearing status, there were not enough non-voice hearers in the sample to allow for meaningful comparisons to be made. Future research could attempt to address this by recruiting non-voice hearers as a comparison group.

The addition of a third experimental group instructed to respond to the audio recording mindfully would have been beneficial to test the effects of a potentially helpful response style. Participants could have been instructed to listen passively to the recording and let their mind wander in response to the words to see if this had an impact on the level of intrusions.

Finally, testing participants in their own homes meant that factors such as background noise could not always be controlled for whilst the participant was listening to the audio recording.

Further research could aim to see if there is any longer term impact of different response styles, for example, asking participants to respond to their voices in a certain way over a week long period. Experience Sampling Methodology could be used to rate distress levels and intrusiveness of voices as various points during the day. If differences were found over a longer period and in this real life setting, then this would have implications for clinical practice. Clients distressed by voices could be taught different ways of responding to help them manage their experiences in a more effective manner and to reduce the intrusiveness of voices which may, in the longer term, lead to an impact on distress levels.

Our findings support cognitive models of voice hearing (e.g. Chadwick and Birchwood, 1994; Morrison, 1998). These models suggest that behavioural responses intended to manage voices can be unhelpful and actually serve to maintain experiences. As resistance and engagement are multifaceted responses it is possible that some elements could be helpful in the management of voices. However, our findings confirm that the attentional components of avoidance and focusing can be considered unhelpful.
Chapter 8: General discussion

8.1 Summary of aims and results

The overarching aim of this thesis was to further the understanding of cognitive and behavioural responses to the experience of psychosis. This was to include responses to the experiences themselves, as well as responses to these experiences mediated by threat appraisals and distress. It was also aimed to investigate whether responses are helpful or unhelpful by investigating relationships between responses, distress and psychotic experiences. An extensive systematic review and meta-analysis of the literature in this area was conducted, as well as four research studies. It is felt that each of these studies addressed these main aims as well as the specific aims detailed below. The systematic review of the literature found that safety seeking responses, avoidance and resistance were positively associated with aspects of distress whilst engagement was negatively associated with the same. None of these response styles were found to be associated with the positive symptoms of psychosis. A further conclusion from this review was that defining safety seeking responses and distinguishing these from coping, including determining whether responses are helpful or unhelpful, is extremely complex and there may be more conceptual overlap between these terms than previously thought.

The second aim was to increase knowledge of the cognitive and behavioural strategies people experiencing psychosis are using, why they have chosen these and what the implications of these responses are. This was to include the benefits people find in their responses as well as the disadvantages. The first study addressed these aims. A qualitative study was conducted using grounded theory methodology. The results indicated that participants find every day a battle and carry out a range of cognitive and behavioural responses in an attempt to manage their distressing experiences. There was a greater complexity to their responding than the traditional safety seeking theory could account for. It was found that where participants reported losing touch with reality and becoming overwhelmed by their beliefs and voices, they felt they had less control over their experiences and reported a greater reliance on responses. At the other end of the spectrum, participants who felt they had control over their experiences had gained
perspective that their fears may not be real and felt they no longer needed their responses. They were also able to look back and identify responses which, although had felt helpful at the time, probably had not actually been necessary. Feelings of control were associated with hope, mood and a conscious monitoring of responses.

In the centre of this continuum, there were responses that participants felt were necessary for being able to function on a daily basis. Some of these responses were protecting them against threats that may have been realistic and that had actually occurred in the past. This included acting on commanding voices to hurt themselves or others. Participants viewed avoidance as the most extreme and unhelpful response and, therefore, other responses were being utilised to prevent avoidant behaviours. For these participants, being told to stop using their responses by therapists or members of the care team resulted in feelings of frustration and could potentially lead to disengagement from services.

The next aim was to develop a measure of common responses to unusual experiences and to use this to investigate the relationship between these responses and other elements of the cognitive model of psychosis to see if they relate to each other in the way that would be expected. These issues were addressed in studies two and three. Study two reports on the development of a measure of common responses and provides preliminary validation of this. The measure was found to have three subscales that appeared to relate to threat monitoring and avoidance, social control and reassurance seeking and conscious self-regulation attempts. The subscales were found to have good internal consistency and some evidence of convergent validity was found with other constructs the subscales were theoretically proposed to relate to. Similarly to the findings of the review and study one, threat monitoring and avoidance was found to be associated with greater distress and, in this case, positive symptoms as well. The three component structure was largely supported using confirmatory factor analysis. Although the measure may need further refinement and evidence of validity, these initial results provide preliminary support that The MCR is a reliable and valid measure. The measure was not found to be stable over time and therefore the proposed best use for the measure is as a situational tool to aid in the identification and formulation of responses in specific contexts within therapy or as an outcome measure in future research.
Study three built on these findings by investigating how the responses of threat monitoring and avoidance, social control and reassurance seeking and conscious self-regulation attempts could be understood within a model of psychosis. Structural Equation Modelling was used and an integrated cognitive and metacognitive model of voice hearing was built. Results indicated that, as predicted, the experience of hearing a voice predicted cognitive and metacognitive beliefs. In turn, beliefs predicted negative affect and responses. Voice hearing did not directly lead to negative affect or responses. Negative affect also did not predict responses; these were predicted by beliefs alone in the model. In a further examination of this relationship, it was found that cognitive, schematic beliefs about the self and others and meta-worry mediated the relationship between the threat monitoring and avoidance response style and negative affect. This provides support for the significance of cognitive and metacognitive beliefs, both within models of voice hearing and within models of responses to unusual experiences. In particular, beliefs about the self and others, as this provided the strongest mediation in the model.

Finally, as much research conducted in this area to date is cross-sectional, a further aim was to investigate the impact of manipulating response styles on the experience of psychosis and distress levels. Study four addressed this aim. An experimental study was conducted to allow for the controlled manipulation of a specific variable (attention). Participants were randomly allocated to either an attentional avoidance or attentional focusing group and asked to listen to an ambiguous audio recording twice. It was found that attentional avoidance resulted in an increase in words identified during the recording; this was taken as an analogue of voice hearing. However, there was no impact in either group on distress levels. This suggested that attentional avoidance is an unhelpful response to voice hearing and can lead to intensification of experiences. This is slightly different to the findings of the review, where responses were not found to be related to positive symptoms but were related to distress. Consistent with the results of study three, voice hearing and responses here were not related to distress levels. It seems likely that distress is predicted by appraisals, as found above. Some support for this view comes from the fact that pre-intervention anxiety and distress ratings in study four were found to correlate positively with ratings of voice malevolence.
It is felt that this thesis has addressed these aims by investigating responses to psychosis using a range of methodologies and producing some novel findings. In particular, the qualitative study has provided an in depth understanding of the ways in which people respond to their experiences and has produced a theoretical model which can now be used for further research in this area. However, as several of the studies included in this thesis make use of cross sectional data from a sample of participants considered to be experiencing chronic and stable difficulties, the ability to draw firm conclusions regarding efficacy of responses is limited and further research is needed to answer this question. It may be more appropriate to analyse longitudinal data in an at risk sample to determine predictors of transition or factors associated with recovery in a first episode sample.

8.2 Key findings
There are several important themes that emerged from this body of work. Firstly, the conceptual difficulties surrounding the classification of responses as either safety seeking or coping. Secondly, that avoidance has consistently emerged as an unhelpful response style. Finally, the important role of appraisals in models of response styles and distress. These will be outlined in detail below.

8.2.1 Conceptual difficulties
An important finding that has emerged from this thesis is the conceptual difficulties surrounding the definitions of safety seeking responses, coping and the differentiation between the two. The original conceptualisation as proposed by Salkovskis (1991) describes safety seeking responses as maladaptive behaviours, employed with the intention of reducing threat. The result of this is that although anxiety is reduced in the short term, threat appraisals are not disconfirmed, meaning that these and the associated distress are maintained in the long term (Salkovskis, 1991). Coping, in contrast, is seen as a response intended to manage distress alone and not a catastrophic misinterpretation of threat. As a result of this, coping is conceptualised as an adaptive response to distress (Salkovskis, 1991). From the initial review of the literature conducted here, it became apparent that differentiating between the two was difficult. Search terms that were intended to identify safety seeking behaviours, for example, avoidance and distraction, resulted also in papers
from the coping literature being identified. Without consideration of appraisal or “what is being avoided and what is sought” (Salkovskis, 1991, p.10), responses cannot be distinguished as either safety seeking or coping. Although the research identified was mostly cross sectional, meaning that causation could not be determined, the results within each response style were mixed, with some studies reporting associations with heightened and others reduced distress. This suggests that classifying responses to psychosis as either adaptive or maladaptive may not be that straightforward or informative. This conclusion was supported by study one, the qualitative analysis of responding to psychosis. This study emphasised that although participants’ responses at times fitted within a safety seeking formulation, there were also further complexities evident. For instance, participants described responding to mitigate real threats or to prevent more extreme safety seeking responses, such as avoidance, from taking over their lives. This suggested that safety seeking responses existed on a continuum and were not only related to threat appraisals but also to perceptions of control and this was related to factors such as mood and feelings of hope. Overall, this indicates that responses to psychosis are changeable and idiosyncratic. Therefore, assessing coping as a stable trait, as is often the case, may not provide an accurate view of a person’s ways of responding across situations (Lazarus and Folkman, 1984). Attempts to define on the basis of outcome, that safety seeking is always unhelpful and coping always helpful, is also unlikely to be a useful approach (Lazarus and Folkman, 1984). A more flexible conceptualisation is required that can account for these complexities and the overlap between safety seeking and coping. The dimensions that could be important to consider include the degree of reliance on the response, the frequency and intensity with which it is used and the impact it has on behaviour, for example, is avoidance enhanced or reduced by the response. Other factors to consider could be whether the response heightens threat appraisals and feelings of control or instead serves to reduce these. It is suggested here that such assessment should be context dependent as these dimensions may change between time and place.

There are examples from the anxiety literature of instances when use of safety seeking behaviours during exposure can actually result in reduced distress and threat appraisals (Milosevic and Radomsky, 2008). This suggests that safety seeking responses should not
always be considered maladaptive and there could be a place for their use during therapy (Rachman et al., 2008). To our knowledge, there are no equivalent studies that have been conducted in a psychosis sample. The reports of the participants’ in study one are similar, however, in that they describe using certain responses as a tool to get them through each day. Responding to real threats is also likely to be an adaptive behaviour, such as leaving a burning building (Helbig-Lang and Petermann, 2010). In addition, the coping literature makes reference to unhelpful coping strategies (e.g. Phillips et al., 2009). Research that has made use of helpful and unhelpful coping categories has found that this has been unable to predict symptom change in the expected direction (Kommescher et al., 2016). Overall, in relation to psychosis there appears to be overlap between the concepts of safety seeking and coping. In practice, it is difficult to distinguish between the two (Thwaites and Freeston, 2005).

8.2.2 Avoidance

A theme running consistently through this thesis is that the response style of avoidance is related to distress. This has been found through correlations in the systematic review and studies two and three. It has been described by participants in study one as the most extreme response and one not felt to be helpful. Finally, in study four, experimental manipulation of attentional avoidance indicated that this resulted in a greater frequency of intrusions analogous to voice hearing experiences. In this case, however, the association with distress was not found (although this may be because it was measured during a brief, analogue task). As seen in study four, the average anxiety and distress levels reported were in the moderate range however, the variance was very large. Participants’ scores ranged between the possible lower and upper limits of the scale (0-100) suggesting that there was great variability in how distressing the participants’ found the task.

Similar associations with avoidant response styles have been found previously. In a non-clinical sample, it has been reported that avoidance was associated with both a greater incidence of psychotic-like experiences and also with distress associated with unusual beliefs and general distress (Campbell and Morrison, 2007). Similarly in clinical populations, avoidance has been found to be associated with positive and negative symptoms (Depp et
al., 2011; Lysaker et al., 2005b), anxiety (Cooke et al., 2007; Freeman et al., 2001; Freeman et al., 2007; Lysaker et al., 2005b), depression (Cooke et al., 2007; Yanos et al., 2008) and various other outcomes such as reduced hope and self-esteem (Cooke et al., 2007; Yanos et al., 2008) and increased stigma (Yanos et al., 2008). However, there are also exceptions to this. No differences in the degree of avoidant focused coping was found between a first episode psychosis group and a non-clinical control group (Allott et al., 2015). Further, avoidance was not found to be associated with perceived stress in either the first episode clients or the control group (Allott et al., 2015). In samples of participants with a schizophrenia diagnosis, avoidance has been found to be unrelated to depression (Depp et al., 2011) or positive and negative symptoms (El Sheshtawy, 2011) and has been found to be associated with improved quality of life (Ritsner et al., 2003). In some research, avoidance has been poorly defined. Some conceptualise it as social withdrawal, while others describe avoidance through social diversion (Ritsner et al., 2003). Others use behavioural disengagement and denial (El Sheshtawy, 2011) or ignoring and resigning (Lysaker et al., 2005b) as measures of avoidance. Avoidance of the kind observed in anhedonia or avolition and interpreted as negative symptoms could also be a type of avoidant safety seeking (Morrison et al., 2004). This could account for some of the differences found and researchers need to be clear about the concept under investigation.

Participants in study one offered some explanations as to why avoidance is particularly unhelpful. They suggested that the resulting isolation can allow thoughts to “snowball” leading to a greater preoccupation with beliefs. They also said that being around others can provide some “normality”. This is consistent with the work of Garety et al (2001) who suggest that avoidance and withdrawal prevent access to normalising information. Involvement in social interactions that are characterised by support and warmth could contribute to disconfirming persecutory beliefs (Freeman et al., 2002).

Within the S-REF model, attentional avoidance would be seen as a goal directed strategy intended to reduce distress but which actually has the opposite effect (Wells and Matthews, 1994a). Such effortful strategies are linked to the activation of the CAS and extended processing that is associated with distress (Wells and Matthews, 1994a). Selection of
unhelpful strategies such as this will be governed by metacognitive beliefs, for example that it is dangerous to think certain thoughts. There could be conflicting positive and negative beliefs relating to strategies such as avoidance. For instance, "looking out for threats keeps me safe" versus “it is dangerous to focus on threats”. It is suggested that conflicting beliefs such as this can cause distress.

The S-REF model provides a model of cognition that sees it operating over three levels. The meta-level of strategic knowledge and plans, an online processing level, which is where the CAS operates, and a level of automatic processing (Wells and Matthews, 1994a). The meta-level and online levels are interconnected by continual monitoring and control of activities (Wells and Matthews, 1994a). This could also explain why attentional avoidance is particularly unhelpful. In the process of monitoring whether the stimuli is being avoided it will have to be attended to, creating a conflict between the goal and the monitoring of the goal.

8.2.3 The importance of appraisal

A further significant finding from this thesis is the importance of appraisal in responses to psychosis. Study one found that appraisals of both threat and ability to control experiences was linked to ways of responding. Study three supported these findings through SEM analysis that showed appraisals mediated the relationship between responses and distress.

Appraisals have an important role in cognitive formulations of psychosis. It is proposed that emotional reactions and behavioural responses are dependent on the appraisal of the intrusion, situation or experience (e.g. Garety et al., 2001; Morrison, 2001). In Salkovskis’ (1991) original conceptualisation of the distinction between safety seeking responses and coping, this was dependent on appraisal. However, the distinction was also linked to outcome and as already discussed, in relation to psychosis there is greater complexity and this may not be the case.

A coping model that also emphasises the importance of appraisal has been proposed by Lazarus and Folkman (1984). In this model, the primary appraisal relates to assessing if a situation poses a threat or how much is at stake. The greater the perceived level of danger and likelihood of occurrence, the greater the distress experienced (Freeman et al., 2002). The secondary appraisal relates to determining if the situation can be coped with and
determining what resources are available (Lazarus and Folkman, 1984). Examples of resources are health and energy, positive beliefs, social support and material resources (Lazarus and Folkman, 1984). It appears that the primary and secondary appraisals as described by Lazarus and Folkman (1984) might be especially relevant to the experience of psychosis.

8.2.3.1 Primary Appraisal

In terms of the primary appraisal relating to the presence of threat, people with experience of psychosis are more likely to have experienced real threat or, as a result of this, to perceive threats in their environment. For instance, experience of trauma or abuse could lead to beliefs that others are dangerous and this could mean that a situation is more likely to be interpreted as indicative of persecution (Gumley and Schwannauer, 2006). Growing up in certain environments could have meant that vigilance for threat was helpful, such as living in urban areas, being from a minority ethnic community or being of low socioeconomic status (Gumley and Schwannauer, 2006). Similarly past experiences could lead to beliefs about the self as vulnerable, which could make an individual feel that they are more likely to be the target of future victimisation (Freeman et al., 2002). This can also be evidenced in voices that are seen as powerful with the voice hearer feeling subordinate to the voice (Birchwood et al., 2004). It has been found that voices appraised as dominant and intrusive are associated with more distress (Vaughan and Fowler, 2004). The response style of keeping a distance from or avoiding the voice was also associated with increased distress (Vaughan and Fowler, 2004). Similarly, in relation to persecutory beliefs, persecutors that are appraised as more powerful are associated with increased distress (Brunet et al., 2012).

The threat can also be very real in relation to psychosis. It is known that people with experience of psychosis are more likely to be victims of violent crimes (Hiroeh et al., 2001), are on the receiving end of stigma (Thornicroft et al., 2009) and are treated in a coercive and restrictive way by services, for example, as inpatients (Kaltiala-Heino et al., 2000). As seen in study one, individuals with experience of psychosis can also sometimes feel that they are a threat to themselves, such as if they have previously harmed themselves or made an attempt on their life. Primary appraisals are, therefore, complex in relation to psychosis.
Some appraisals, such as those relating to persecutory beliefs, could fit the criteria of “catastrophic misinterpretations” of threat. Others however, may be more realistic, such as concerns about being admitted to hospital, the impact of diagnosis or the experience of symptoms of psychosis themselves (Frame and Morrison, 2001). Feeling suspicious of others could be understood as an adaptive response in the context of some of the life experiences discussed above (Mayhew and Gilbert, 2008) and one which could promote survival (Gumley and Schwannauer, 2006). Consistent with this, it has been found that beliefs about paranoia as a survival strategy were associated with increased frequency of suspicious thoughts in a nonclinical sample (Morrison et al., 2005).

8.2.3.2 Secondary Appraisal

The secondary appraisal relating to ability to cope and resources available to draw upon is also particularly relevant to psychosis. The example resources suggested by Lazarus and Folkman (1984), have been found to be reduced in relation to psychosis. For example, low self-esteem (Close and Garety, 1998) and low hope (McCarthy-Jones et al., 2013). Material resources may also be low, as detailed above, as many people with psychosis are of low socioeconomic status (Werner et al., 2007). There could also be a reduction in cognitive resources such as memory and attention, possibly as a result of taking antipsychotic medication, and these reductions may also be overestimated leading to beliefs of powerlessness and likely failure (Rector et al., 2005). It has been found that cognitive and neurocognitive difficulties such as with memory and attention are associated with a greater reliance on avoidant coping responses and with less use of problem solving and seeking social support (Depp et al., 2011; Lysaker et al., 2004b).

Perceptions of being able to cope could act as a protective factor for people experiencing psychosis as it has been found that participants who had confidence in their coping ability were less likely to develop post-traumatic stress disorder (Brunet et al., 2012).

A meta-synthesis of qualitative studies investigating the experience of psychosis found loss of hope was a recurrent theme (McCarthy-Jones et al., 2013). This could be associated with incidents such as the loss of a job, with the experience of hearing voices or with the impact of diagnosis and pessimistic messages from services (McCarthy-Jones et al., 2013).
Similarly, feelings of powerlessness can be emphasised by services who may remove any feelings of control through the use of compulsory treatments or detention in hospital (Seed et al., 2016).

Feelings of control have been found to be related to both coping and symptoms. For example, an internal locus of control has been found to be associated with less positive symptoms, better self-concept and more use of active change coping (Hoffmann et al., 2000) and active problem solving (Bak et al., 2003). Similarly, those participants who reported a more internal locus of control and greater self-esteem were more likely to have discontinued their antipsychotic medication over a fifteen year period (Harrow and Jobe, 2007). These participants also had better work and social functioning and improved clinical outcomes than those still taking medication (Harrow and Jobe, 2007). This suggests that an internal locus of control is associated with a greater likelihood of recovery over a fifteen year period (Harrow et al., 2009). Feelings of control in terms of empowerment and mastery as well as hope and optimism have been found to relate to quality of life in a Chinese sample (Ho et al., 2010).

However, an external locus of control has been associated with lower self-concept, a higher degree of negative symptoms and depression and a more resigned response style (Hoffmann et al., 2000). External locus of control was also found to be associated with poorer rehabilitation outcomes in terms of training and employment (Hoffmann et al., 2000). Lower control over symptoms has been found to be associated with responses more related to the content of experiences, such as obeying commanding voices and with a greater need for care (Bak et al., 2003). Similarly, it has been found that voice hearers in the general population experience their voices as more controllable than voice hearers with a schizophrenia diagnosis (Honig et al., 1998). The latter group also experienced their voices as more negative and frightening (Honig et al., 1998). Similarly, others have reported that voices which are appraised as uncontrollable are associated with greater feelings of depression and reduced self-esteem (Fannon et al., 2009). These findings have been supported by qualitative interviews with participants who have reported that establishing
control over their voices has enabled them to develop a positive relationship with them (Jackson et al., 2011).

In relation to persecutory beliefs, individuals who feel that they have no control over the persecution are likely to experience more distress and depression (Brunet et al., 2012; Freeman et al., 2002). Low confidence in coping with the persecution has also been found to be associated with distress (Brunet et al., 2012). Use of generally unhelpful strategies such as thought control can then reinforce beliefs about uncontrollability (Freeman et al., 2002).

Qualitative research has indicated that the experience of being hospitalised can serve to remove any feelings of control an individual may have over their experiences, treatment and even basic day to day decisions (Perry et al., 2007). This was associated with feelings of powerlessness and hopelessness (Perry et al., 2007). In a group of participants with experience of psychosis, perceptions of a lack of control over their illness was associated with a greater likelihood of developing post-traumatic stress (Brunet et al., 2012).

**8.2.3.3 Interaction between primary and secondary appraisals**

It has been suggested that early experiences of uncontrollable events can lead to an increased likelihood later in life of perceiving events to be out of control (Chorpita and Barlow, 1998). Although these ideas have been developed in relation to anxiety (Chorpita and Barlow, 1998), they also seem of particular relevance to the experience of psychosis. As described above, those with experience of psychosis may have grown up in environments that were less controllable due to being of low socioeconomic status (Anderson and Freeman, 2013), not being provided with a secure attachment figure (Berry et al., 2008), being raised in care (Bentall et al., 2012) or being the victim of abuse (Varese et al., 2012b). A general population study found that participants who reported experience of childhood abuse and later went on to develop psychosis, reported more distress and lower feelings of control associated with their unusual experiences than those who had not suffered abuse (Bak et al., 2005). This association remained after controlling for severity of symptoms. This suggests that early experiences can impact upon coping resources leading to less effective responding and poorer outcomes (Bak et al., 2005). This demonstrates an
interaction between primary and secondary appraisals whereby experience of threat serves to reduce perceived ability to cope.

Similarly, it has been found that where there is a history of unstable attachments, this is associated with more avoidant or “sealing over” response styles (Tait et al., 2004). It is suggested that poor attachments and low parental care during development could reduce coping resources such as resilience, therefore having an impact on response styles (Tait et al., 2004). Insecure attachment and a sealing over response style was also associated with a reduced likelihood of engagement with services (Tait et al., 2004). This has implications for service delivery, which will be discussed in more detail below.

A further example of the interaction between primary and secondary appraisals is in relation to stigma. Stigma both from other people and the internalisation of this as self-stigma could represent sources of threat. This could be as a result of discrimination from others or the expectations of this. Internalised stigma has been found to be associated with reduced coping resources in terms of hope, empowerment and self-efficacy (Livingston and Boyd, 2010). This association was not specific to schizophrenia however, as other diagnostic groups were also included in the analysis (Livingston and Boyd, 2010). In a sample of participants specifically with a diagnosis of schizophrenia, it was found that internalised stigma was associated with perceived lack of cognitive resources and perceptions of low likelihood of success (Park et al., 2013). There was also an association with depression and low satisfaction with quality of life in the areas of family and social relations (Park et al., 2013). In a separate analysis, self-efficacy and empowerment have been found to mediate the relationship between self-stigma and these outcome variables (Vauth et al., 2007). Similarly, hopelessness and low self-esteem has been found to be predicted by internalised stigma and to lead to use of avoidant coping (Yanos et al., 2008). The avoidant coping strategies of secrecy and withdrawal have been found to predict self-stigma, suggesting that these response styles could then create a feedback loop by maintaining these beliefs (Vauth et al., 2007). Stigma researchers have also used Lazarus and Folkman’s (1984) coping conceptualisation to understand stigma stress. They have found that the greater the perceived stigma, the more stigma is perceived as harmful (Rüsch et al., 2009b). This is
seen as the primary appraisal. They also found that the greater the concern about being rejected, the fewer coping resources participants felt they had (Rüscher et al., 2009b). The authors also subtracted scores on the secondary appraisal from scores on the primary appraisal to produce a stigma stress score. They found that this correlated positively with both perceived stigma and rejection sensitivity (Rüscher et al., 2009b). An interesting finding from this study was that perceptions of having more available coping resources was associated with feeling more connected to the group and holding other group members in high regard (Rüscher et al., 2009b). This suggests that feeling part of a group can be a protective factor. However, in a second study it was found that stigma stress appraisal was not associated with coping responses (Rüscher et al., 2009a). The study measured three specific stigma coping strategies, namely placing low value on achievements, comparing oneself with other group members and blaming discrimination for failures (Rüscher et al., 2009a). It is possible that by measuring more general responses such as avoidance, a relationship would have been found. Devaluing achievements and blaming discrimination were found to be associated with increased hopelessness and all three responses were related to increased social distance from others (Rüscher et al., 2009a). These studies investigating stigma stress included participants with diagnoses other than schizophrenia. It would be interesting to see if outcomes differed in a sample that was schizophrenia specific, since some of the most negative stigmatising views are held about this diagnosis in particular (Crisp et al., 2000).

The above interplay between threat appraisals, coping resources and responses is summarised in Figure 9. It is suggested that in relation to psychosis in particular there are additional complexities in each of these areas. Threat appraisals may be more complex given the likelihood of exposure to traumatic experiences, which may impact on coping resources by affecting feelings of control and self-esteem. It is suggested that each of these factors will then influence the coping response chosen. For example, perceiving a high risk of threat and few resources to cope with it may result in avoidant responses. The responses in turn could then either challenge or reinforce the appraisals. For instance, it has been found here that attentional avoidance can increase voice hearing experiences which could heighten threat levels and also confirm beliefs relating to uncontrollability. In relation to
other response styles, factors relating to that specific person in a particular context will
determine outcome. Certain responses may be more likely to challenge appraisals such as
active strategies or seeking social support. Responses that are mindful or “doing nothing”
strategies may be more likely to free up cognitive resources, in opposition to perseverative
strategies. This conceptualisation indicates several areas where a therapeutic intervention
could be targeted. This will be discussed further below.
Figure 9: Diagram of the relationship between threat appraisals, coping resources, and responses

Threat appraisal
- Influenced by: Experience of abuse and trauma
- Attachment difficulties
- Stigma
- Demographic factors
- Bullying and victimisation
- Service provision
- Previous self-harm

Factors relevant to psychosis:
- Voices / persecutors seen as powerful
- Appraisal may not be accurate
- Held with high conviction
- High stakes
- Positive and negative beliefs e.g. - threatening voice is protecting me

Coping resources
- Low perceived control
- Feelings of powerlessness
- Low self-efficacy
- Reduced cognitive resources and overestimation of this
- Low material resources
- Low self-esteem
- Low hope
- Negative symptoms
- Past experiences of perceived failure of coping, e.g. - being hospitalised
- Services reinforcing inability to cope, e.g. - advising to avoid stress
- Service provision removing control

Response selection
- Avoidance
- Attempts to suppress voices
- Sealing over
- Secrecy and withdrawal
- Self-criticism
- Consciously self-regulation
- Reassurance seeking
- Distraction
- Dealing with real threats
- Tools to prevent avoidance
- Active strategies
- Mindful acceptance

Efficacy of response will be person and context specific

Fit between appraisal and response

Could maintain or reduce appraisals
8.3 Critical analysis of the research studies

There are several strengths of this body of work which will first be considered before reviewing the limitations that also exist.

It is a strength that mixed research methodology was utilised including systematic review, cross sectional analyses, qualitative and experimental approaches. This has allowed for investigation of correlational associations between variables, in depth analysis from a service users perspective and for the investigation of causation. It is felt that utilising a mixed approach such as this helps to provide a comprehensive study of the topic.

A further strength is that for studies two and three a large and clearly defined sample was used. This allowed for techniques that require a large sample to be utilised, such as factor analysis and structural equation modelling. The sample was representative of a wide age range and also represented community, inpatient and forensic populations.

However, use of this sample is also a limitation due to the lack of diversity it represents. The FOCUS Trial recruited a very specific sample of participants considered to have treatment resistant schizophrenia and, therefore, the generalisability of the results from studies two, three and four might be limited as a result of this. The findings may not generalise to other client groups such as those with a first episode of psychosis. It can also be useful to include non-clinical samples in research to investigate the specificity of results.

The sample was not representative of Black and minority ethnic groups with the majority of participants identifying themselves as being White British. Given that the incidence of schizophrenia is thought to be higher within the Black community (Fearon et al., 2006), this could mean that the results found here are not representative of the wider population of people with a diagnosis of schizophrenia.

For all of the studies presented here, participants were recruited via referral from their care team. This could create a bias as care coordinators may only make referrals for clients they feel are well engaged, rather than this being a random and representative sample of every eligible client. A review found that clinicians expressed concerns about research in terms of ruining their rapport with the client, the trial being burdensome to the client or the client not
being allocated to the treatment arm of the trial (Ross et al., 1999). This study largely included physical health research but the same factors seem likely to be relevant. Qualitative research specifically involving mental health teams has found that there could be an issue of paternalism (Bucci et al., 2015). Care coordinators reported they would only refer their clients to research if they felt they were well enough or likely to engage (Bucci et al., 2015). This is problematic as not only is such gatekeeping limiting service users’ choice about being involved in research, it can also result in unrepresentative samples (Bucci et al., 2015). Research participants expressed similar concerns about the additional demands taking part in research may place on their time (Ross et al., 1999) and that they would prefer not to be randomised (Sumner et al., 2014). This could have resulted in some eligible clients declining to take part in The FOCUS Trial. This could mean that it may be only a subgroup of the most altruistic clients who do agree to take part in research (Ross et al., 1999; Sumner et al., 2014).

Although a range of measures were used in this set of studies and this could be seen as a strength of the work, the absence of a coping measure is a limitation. This would have improved the assessment of convergent validity in study two, could have been used as a comparable model in study three and would have provided a set of additional data that would have been relevant and interesting to this topic. There are some issues with existing coping measures however, as many assess coping as a personality trait (e.g. Carver et al., 1989). It has been identified here that a state measure of responding may be more appropriate and should ask the respondent to consider a specific situation or context. Further, subscales of specific responses should not be categorised as either helpful or unhelpful, as depending on the context or the person, this may not be the case. Measures of response styles would also benefit from assessing appraisals, both in relation to perceptions of threat and coping resources.

The above represent limits of the RCT design. It would not be ethical to approach clients directly to ask them to take part, so the referral bias discussed above is created. Balancing collection of meaningful outcomes against burden to participants and likelihood of attrition, limits the ability to include additional measures in the data set. For the same reason, long
term stability data could not be collected in study two any earlier than nine months as addition of an extra time point soon after a protracted baseline assessment may have resulted in increased withdrawal from the trial or unnecessary stress caused to the participants. Perhaps more naturalistic study designs embedded into normal service provision may be an option in the future.

It is acknowledged that the procedure for measure development used here in study two represents a weakness of this work. A larger item pool should initially be employed in the pilot stage of a new measure. The qualitative study presented in study one should have been used to generate these items and further inform the development of the measure. For instance, the participants’ rich descriptions of their idiosyncratic response styles should have been added to the item pool. The results of the qualitative study could also have led to adding additional items to the measure, such as to question the degree of perceived control participants felt they had over their experiences or how reliant they felt on their chosen response.

As with most research in the social sciences, there was a degree of missing data in the analyses presented here. However, the rate of missing data was generally low, with at most about 20% missing values. The PANSS data was 100% complete. Some of this is likely to have been missing completely at random, such as in the case where a participant accidentally misses out one question on a measure. However, other missing data might be less random, such as in cases where the researcher decided not to continue completing questionnaire measures with a participant who was distressed. In this case missing data could relate to other factors, such as symptom severity. Missing data in SPSS is handled through listwise deletion (Field, 2009). This means that any participant with missing data is excluded from the analysis. This can cause a problem as it may result in a reduction in sample size and, therefore, statistical power (Schlomer et al., 2010). It also means that if data is not missing completely at random, the remaining sample may differ in some way to the excluded participants (Schlomer et al., 2010). Pairwise deletion could have instead been used to retain as many participants in the analysis as possible or missing data could have been replaced by the mean. SPSS does not have any other options readily available
These issues therefore apply for studies two and four. The analysis in study three was conducted using AMOS and in this case, missing data was replaced with the mean. This, therefore, retains the sample size but can also be a problematic approach to handling missing data. It results in a reduced variance of the data set and, as above, if data is not missing completely at random, the means could be biased (Schlomer et al., 2010). A preferable strategy that can be utilised in AMOS is to estimate missing scores by creating parameter estimates from the data that is present. This method preserves sample size and is thought to result in less bias than the approaches described above (Schlomer et al., 2010). It would, therefore, have strengthened the analysis in study three to take this approach but as our aims were more exploratory, this was not possible.

8.4 Proposals for future research

Given the findings reported here relating to the importance of context and person-environment interactions in determining response styles, research is needed that can adequately capture this changing and dynamic relationship. The Experience Sampling Method (ESM) may be well equipped to do this as it captures both day to day experiences and contextual factors (Myin-Germeys et al., 2003). Commonly, this procedure involves asking participants to wear a watch over a week long period and to fill in a range of measures each time the watch provides a reminder to do so (Myin-Germeys et al., 2003). This is usually up to ten times each day at random times (Myin-Germeys et al., 2003). Use of this procedure enhances the ecological validity of the data as it is being captured in real time (Palmier-Claus et al., 2011). The data is considered longitudinal, albeit over a short time frame and therefore associations over time and within different contexts can be investigated (Palmier-Claus et al., 2011). This is important for coping research where there may be considerable variation in responses that is not captured by a measure being given at a single time point. Participants are asked to fill in the questionnaires within fifteen minutes of the beep and not to “back-fill” in order to capture the present moment (Palmier-Claus et al., 2011).

Two ESM studies have been conducted looking at responses to psychosis. The first looked at the association between experiential avoidance, paranoia and self-esteem (Udachina et
It was found that experiential avoidance could contribute to the development of paranoia. This was found to be both a direct effect and also partly mediated by low self-esteem (Udachina et al., 2014). The second looked at the impact of thought control both on persecutory beliefs and voice hearing experiences (Hartley et al., 2015). Here it was similarly found that attempts at thought control were associated with increases in the severity of the experiences and the associated distress (Hartley et al., 2015). These studies indicate that ESM studies on this topic are feasible and participants are able to answer questions relating to momentary responses.

To build on the research conducted here, an ESM study could be conducted to investigate the relationship between primary and secondary appraisals, responses and distress. Baseline assessment could include The PANSS as an overall indication of symptom severity as well as measures of attachment, stigma, self-esteem, hopelessness and experience of trauma. The participant would be issued with a watch to wear and a booklet of questions to complete at each beep. The procedure would be explained carefully to ensure the participant was comfortable with what to do over the coming week (Palmier-Claus et al., 2011). They would also be contacted by telephone after two days to ensure that they had not encountered any issues with the equipment or questions (Palmier-Claus et al., 2011).

The momentary questions to be completed after each beep could relate to how threatened the participant currently feels, how confident they are in their ability to cope with this threat and questions relating to current mood. Free text boxes would be provided for the participant to note down additional details regarding these questions if they chose to. A free text question would also be asked regarding if they were currently doing anything in response to the threat. The participant could also be asked to rate the perceived efficacy of this response. Finally contextual details would be assessed by asking the participant where they were and who they were with (Myin-Germeys et al., 2003). This procedure would allow for not only associations between variables to be examined but causal relations as well. It would also allow for analysis both within and between participants.

Another approach that is being used to gather momentary data is virtual reality. In this way participants can enter a feared situation and safety seeking behaviour use can be
manipulated (Freeman et al., 2016a). This approach can allow the participant to feel safer than they would in a live situation and so increase their confidence for experimentation (Freeman et al., 2016a). Varying levels of safety seeking behaviour utilisation could be tested to determine if this has an impact on distress, threat appraisals and feelings of control in the situation.

A further direction for future research could be to examine the efficacy of approaches to therapy that are implicated by these findings. For instance, designing an intervention to improve self-esteem, hope and perceptions of control and assessing this in relation to response styles, perceptions of threat and mood. Similar to the research that has been conducted in relation to anxiety disorders, therapy studies could be conducted allowing for different levels of safety behaviour utilisation to determine the impact of this on threat beliefs and distress.

It will be discussed below that service provision could impact on a service user’s feelings of control and, therefore, on their responses. It would be interesting to conduct qualitative research in an inpatient setting to investigate the impact of restrictive treatment on coping resources. Alternatively, a comparison across different settings could be carried out. To build on the qualitative research conducted in study one, it would be interesting to question clients and therapists regarding their experiences of CBT, use of behavioural experiments and dropping of safety seeking responses. This would allow for comparison of staff and service user experiences which could lead to developments in the delivery of CBT, allowing the client to remain in control. It is also possible that services are contributing to safety seeking behaviour use. For example, within a stress-vulnerability framework, encouraging avoidance of stressful situations could lead to withdrawal, or use of medication could encourage emotional avoidance. Monitoring for early warning signs of relapse could be compared to threat monitoring. Exploration of these questions through qualitative interviews with both service users and staff could highlight examples of how services are empowering individuals, or alternatively, inadvertently encouraging threat monitoring and avoidance.

Further research that could be conducted with The FOCUS data set could be to look at the MCR data longitudinally by comparing responses at baseline, nine months and twenty-one
months. SEM could again be utilised to investigate whether response style at baseline is predictive of symptoms and functioning at nine and twenty-one months. Data could also be analysed in the group of participants who received the CBT intervention to determine whether there is any relationship between treatment outcome and response styles. For example, does changes in response style mediate treatment outcome? Due to the associations found with avoidance and distress, it could be that therapy could reduce distress levels partially through reductions in threat monitoring and avoidance. Changes in appraisals would also be expected to mediate this relationship. The response styles of social control and conscious self-regulation were not found to have a clear relationship with distress and would be expected to be more idiosyncratic. Data could be analysed at an individual level to see if there were any particular cases where these response styles did have an impact on therapy outcome. Measures of childhood trauma, stigma and attachment could also be included to investigate the relationship between these variables, responses and distress.

8.5 Implications for clinical practice

There are several clinical implications arising from this research. In general, the results reported here support the cognitive model of psychosis and suggest that CBT should be offered, in line with NICE guidelines (NICE, 2014). However, due to the likelihood of individual differences in response styles, as demonstrated by the mixed results between studies in the meta-analysis and the rich discussions in study one, CBT may not be effective for everybody. Therefore, possible alternative third wave approaches will also be discussed.

8.5.1 Cognitive Behavioural approaches

When conducting CBT for psychosis, it is suggested that it is important to assess the responses used by the client (Morrison et al., 2004). This assessment should include any possible functional aspects of responses as well as unhelpful aspects (Morrison et al., 2004). Use of metaphors of extreme examples of safety seeking in response to unlikely fears can help clients to realise their own safety seeking responses and the possible impact of these (Morrison et al., 2004). It may then be possible to conduct behavioural experiments in order to test out beliefs (Morrison et al., 2004).
A consistent finding from this thesis is that avoidance is associated with heightened distress and an increase in intrusions. Therefore, supporting a client to identify and reduce avoidant strategies is likely to be helpful. Instead, use of responses that increase engagement with others, reduce self-focus and allow access to evidence that challenges beliefs should be encouraged (Freeman et al., 2002). Supporting the client to enter situations that they find anxiety provoking, such as busy shops, can facilitate the development of feelings of safety (Freeman, 2016). In this way, therapy can take place in real world situations (Freeman, 2016). Use of virtual reality can also facilitate this. A recent study found that instructing participants experiencing persecutory beliefs to drop their idiosyncratic safety seeking responses in a social virtual reality environment resulted in decreases in distress associated with paranoia and reductions in threat beliefs (Freeman et al., 2016a). These results were not found in a group who were exposed to the same situations but in the absence of instructions to drop safety seeking responses (Freeman et al., 2016a).

A key implication for clinical practice is that responses should not be assumed to be either helpful or unhelpful. An individualised formulation should be created to acknowledge that responses are person specific (Freeman et al., 2002) as well as context specific. A detailed assessment of strategies used historically and how these may have been helpful previously, for example, suspiciousness and withdrawal as a survival strategy, should be conducted (Gumley and Schwannauer, 2006). This normalises response styles as understandable within the context of certain life experiences and allows for discussion of their utility within the current context (Gumley and Schwannauer, 2006). Responses could then be monitored by the client and the advantages and disadvantages considered. The client and therapist can explore the impact of responses such as avoidance and whether they may be contributing to feeling threatened and distressed (Gumley and Schwannauer, 2006). Alternative strategies could then be tested out or developed, such as communicating with others and compassion towards themselves (Gumley and Schwannauer, 2006).

8.5.2 Third wave approaches

Qualitative research has suggested that engaging with voices can enable the development of a positive relationship between the voice hearer and voice (Jackson et al., 2011). The
values of The Hearing Voices Movement also promote acceptance of and engagement with voices, as opposed to attempts to suppress or avoid (Corstens et al., 2014). It is suggested that voice content can provide meaning and promote understanding of voice hearers’ experiences (Corstens et al., 2014). In relation to persecutory beliefs, it is also suggested that strategies that attempt to suppress thoughts are likely to be unhelpful (Freeman et al., 2002). However, in this case, engaging with beliefs is not thought to be helpful (Freeman et al., 2002). Study four reported here was consistent with this as it was found that engagement also resulted in an increase in voice hearing. Therefore, approaches that promote doing nothing and acceptance may be beneficial.

Mindfulness based approaches, which have been increasing in popularity, promote awareness and acceptance of intrusions (Davis and Kurzban, 2012). This can improve control of attention which could increase the availability of cognitive resources (Davis and Kurzban, 2012). A review of mindfulness based treatments found studies report many benefits for people experiencing psychosis, including reduced distress, increased control, improved functioning including less social withdrawal and reduced hospitalisations (Davis and Kurzban, 2012). The review also included qualitative studies and so participants’ experience of mindfulness could also be considered. Participants reported that practicing mindfulness helped them to become aware of their unusual experiences without having to respond to them and that this helped them to feel that they were regaining control of their experiences (Davis and Kurzban, 2012). It was concluded that mindfulness interventions can help people experiencing psychosis to begin to relate to their experiences more effectively, thereby improving their coping and reducing distress (Davis and Kurzban, 2012). However, there were some methodological limitations and further controlled trials are required (Davis and Kurzban, 2012).

Approaches based on Compassionate Mind Therapy seek to reduce conflict with voices and instead promote self-soothing systems (Mayhew and Gilbert, 2008). Certain responses such as self-criticism are normalised and it is acknowledged that they could be perceived as serving a function, such as preventing deviant behaviour (Mayhew and Gilbert, 2008). Replacing such thoughts with compassion and self-soothing can also serve to reduce voice
malevolence (Mayhew and Gilbert, 2008). This approach has been applied with participants with psychosis in a forensic setting (Laithwaite et al., 2009). It was found that a group compassion focused intervention resulted in improvements in depression, self-esteem and social rank (Laithwaite et al., 2009). Therefore, it appears that compassionate approaches can be utilised to improve coping resources.

Consistent with this it has been found that people who hear voices but do not have a need for care report responding more mindfully to their voices and are more accepting of them than a clinical group (Peters et al., 2016). Similarly, a different sample of non-clinical voice hearers most frequently endorsed doing nothing as a coping response (Kråkvik et al., 2015). This was in contrast to a clinical sample that employed more resistant strategies such as pleading with the voice to stop talking (Kråkvik et al., 2015). In line with our experimental findings, these participants reported that pleading with the voice would actually have the opposite effect of increasing the frequency of the experience (Kråkvik et al., 2015).

8.5.3 Metacognitive approaches

MCT aims to help the client discover that strategies such as resistance and attentional avoidance may be unhelpful responses to intrusive experiences or worries about these experiences. Instead, they should be viewed as insignificant events and extended processing of them is not required. Clients can then be supported to learn new ways of responding to their experiences. This can include detached mindfulness. Detached mindfulness involves becoming aware of thoughts without processing them and without responding with goal directed coping strategies (Wells, 2005). Detached mindfulness differs slightly from the traditional mindfulness approaches discussed above as it involves taking a step back and seeing thoughts as separate to oneself, rather than a focus on being present. This is intended to improve the flexibility of attention and the availability of resources for more productive strategies (Wells, 2005). This could be applied to the experience of psychosis by deciding not to do anything in response to intrusive or worrying thoughts. A case series of three participants with experience of psychosis found benefits of MCT for both positive and negative symptoms (Hutton et al., 2014). Although not all participants achieved a positive outcome and further research is needed to determine the efficacy and safety of
MCT, these preliminary results indicate that it could be a beneficial approach (Hutton et al., 2014).

Study four demonstrated that both attentional avoidance and focusing can be unhelpful responses to voices. Therefore, attention training approaches may also be beneficial. The aim of ATT is to improve the metacognitive control of attention (Fisher and Wells, 2009). Exercises such as attention switching are practiced, not as a source of distraction but in order to disrupt unhelpful attentional processes (Fisher and Wells, 2009). This approach can be applied to voices by asking the client to focus on the voice and then switching attention away to other stimuli (Valmaggia et al., 2007). A case study has been presented demonstrating that ATT can be effective for a client distressed by voices (Valmaggia et al., 2007). This case study also demonstrates how even though certain beliefs about voices may have been challenged through CBT, the voice can continue to be a source of distress through continuing to attend to it, worry about it or be vigilant to signs of threat (Valmaggia et al., 2007). Through learning to use ATT, the client found that his voices reduced in frequency and became less distressing (Valmaggia et al., 2007). As he was able to switch his attention away from the voices he was also less distracted by them meaning that he was able to engage more fully in social and occupational activities (Valmaggia et al., 2007). ATT also allowed the client to feel that he was now in control of the voices (Valmaggia et al., 2007). Although a larger trial is now needed to provide further evidence for this approach, it appears that ATT could be effective in the treatment of voices. Our findings in relation to the unhelpful attentional components of avoidance and focusing on voices would also support the rationale for using ATT.

8.5.4 Building coping resources

Study one identified the importance of feeling in control of experiences and how this may be impacted upon by feelings of hope, confidence and well-being. Therefore, building coping resources and perceptions of these could also be helpful in clinical practice. It is possible that through reduction of restrictive responses such as avoidance, an individual may begin to feel more in control of their life (Freeman et al., 2002). Therefore, the cognitive behavioural
interventions discussed at the beginning of this section should also contribute to a client feeling more in control.

Coping resources have been identified as essential components of recovery, such as empowerment, hope and optimism; and perceived knowledge about mental illness and available treatments (Resnick et al., 2005). The latter could be related to feeling more in control both of experiences and care received. Access to positive stories and role models could be one approach to promoting hope and, therefore, recovery (Corstens et al., 2014). Interventions that aim to inspire hope and a sense of mastery could have the effect of leading to improvements in quality of life (Ho et al., 2010). Building on protective factors such as self-esteem could also be an important target for intervention (Peters et al., 2016). These core components of recovery should be emphasised by services and health care professionals (Resnick et al., 2005). The finding that hope can be damaged by contact with mental health services is very worrying (McCarthy-Jones et al., 2013).

As study three reported that beliefs about self and others mediated the relationship between responses and distress, interventions designed to improve self-concept could be beneficial. A brief, six session intervention has been designed for this purpose (Freeman et al., 2014). Although the intervention is cognitive behavioural, it also draws upon positive Psychology (Freeman et al., 2014). At the end of treatment, it was found that there were improvements in positive beliefs about the self, social comparison, self-esteem, well-being and depression (Freeman et al., 2014). However, improvements were not maintained at twelve week follow up (Freeman et al., 2014). It is possible that targeting responses alongside self-beliefs in the intervention may have led to longer term benefit. The results of study three indicated that responses predicted beliefs about self and others, suggesting a role for responses in maintaining such beliefs.

As discussed above, contact with mental health services and in particular hospitalisation, can serve to reduce feelings of control (Perry et al., 2007). Services can be experienced as threatening as independence and choice can feel compromised (Gumley et al., 2010). This may provoke certain responses from the client, such as avoidance or defiance or alternatively, by being overly compliant (Gumley et al., 2010).
Sealing over or avoidant response styles which may be associated with attachment difficulties, can result in lack of engagement with services (Tait et al., 2004). This response from the client may result in a more coercive approach being taken by the care team, heightening feelings of threat and further avoidance from the client (Gumley et al., 2010). Therefore, it is suggested that services should not be overly intensive or dominating in their approach to engagement (Tait et al., 2004). Instead, an informal approach should be taken, allowing the service user to remain in control (Tait et al., 2004). As found in study one, participants who felt they were being forced to drop safety behaviours experienced feelings of frustration as a result of this and talked about disengaging from services.

In an observational study conducted over a fifteen year period, rates of suicide, self-harm and absconding were compared on open and locked wards (Huber et al., 2016). After controlling for clinical and demographic variables it was found that suicide attempts and absconding both with and without return were less likely on the open wards as compared to the locked wards (Huber et al., 2016). There was no difference in the rate of completed suicide. This suggests that restrictions put in place for patient safety may not be effective and may actually be harmful (Huber et al., 2016). It could be that locked wards are associated with reductions in feelings of control, hope and empowerment which could contribute to these negative outcomes.

A synthesis of qualitative research relating to involuntary detainment provides support for this theory (Seed et al., 2016). It was found that staff members were seen as powerful and practices on the ward enforced this power differential. Treatment was seen as punitive and participants reported not being involved in decisions about their care (Seed et al., 2016). This resulted in a frightening and disempowering experience. As above, this could lead to responses such as fighting back and avoidance, in turn resulting in greater use of coercion, lack of engagement in activities that could be beneficial and possibly, extended hospital stay (Seed et al., 2016). Therefore, this review concluded that patients should be allowed to retain as much control as possible whilst detained in hospital, for instance, being able to make decisions about their treatment (Seed et al., 2016). A person-centred approach to recovery should be emphasised (Seed et al., 2016).
In contrast to much inpatient service provision is the Soteria movement developed in the 1970’s (Calton et al., 2008). It’s key principles include provision of a lay-person run therapeutic community, retention of the individual’s power and, crucially, choice over their own treatment (Calton et al., 2008). A review conducted in 2008 identified studies conducted at Soteria projects in America and in Sweden (Calton et al., 2008). It found that there were few significant differences between participants who entered the Soteria project versus those that did not. Some differences that did emerge were reduced use of medication, reductions in global psychopathology and number of readmissions (Calton et al., 2008). As many other outcomes also favoured the Soteria paradigm, it is concluded that this approach is at least as effective as existing treatment options and likely to be more cost effective since there was less use of medication and hospitalisation (Calton et al., 2008).

Similarly, recovery houses have been suggested as an alternative to inpatient care as this environment may feel safer and less restrictive (The Schizophrenia Commission, 2012). Many service users are unwilling to be admitted to hospital as a result of previous negative experiences, leading to an increase in involuntary admissions (The Schizophrenia Commission, 2012). Provision of recovery houses may be a solution to this problem.

Services that inspire hope and optimism and that allow the service user to retain feelings of control over their experiences and treatment seem likely to result in better outcomes.

8.6 Overall conclusions

In conclusion, it has been found that the ways in which individuals respond to the experience of distressing psychosis is complex, idiosyncratic and context dependent. It seems likely that responses fall on a continuum with safety seeking behaviours at one extreme, characterised by greater frequency and intensity of, as well as greater reliance on, responses. However, it should not be assumed that all responses are of this nature or that a certain response is always unhelpful, as this does not appear to be the case. Greater flexibility in understanding response styles is required.

Response styles can be measured, as the questionnaire developed here indicates. Therefore, response styles can be accurately monitored across time or situations. This
measure can also now be used for future research to continue to further the understanding of responses to psychosis.

Psychological models that include appraisals, both cognitive and metacognitive, have been found to relate meaningfully to both responses and distress levels. Therefore, assessment and treatment of appraisals is important in supporting a client to change their response styles.

Finally, a theme running consistently through this thesis is that avoidance is not likely to be an effective strategy for managing distress or the unusual experiences of psychosis. Therefore, supporting clients to reduce avoidant cognitive and behavioural responses is likely to be beneficial.

Enhancing coping resources such as hope, self-esteem and an internal locus of control may help someone struggling with psychosis to feel less threatened by their experiences and to respond more effectively. Mental health services, therefore, have a duty to promote optimism, to empower their clients and to adopt a recovery oriented approach to the care they provide.
9. References


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A qualitative exploration into the nature of safety seeking behaviours

INFORMATION FOR PARTICIPANTS

You are being invited to take part in a research study. It is important for you to understand why the research is being done and what it will involve. Please take time to read the information below carefully, and discuss it with others if you wish. The Research Assistant who gave you this sheet will be happy to answer any questions that you might have about the information set out below. Feel free to ask if there is anything that is not clear, or if you would like more information. You may wish to read the information sheet more than once, and you should take time to decide whether or not you wish to take part.

1. What is the purpose of the study?
This study is being conducted as part of a PhD project focussing on the area of safety seeking behaviours in psychosis. Safety seeking behaviours are the actions that people carry out to keep themselves safe when they believe that they are under some kind of threat. For example, avoiding leaving the house due to a belief that someone means them harm. Safety seeking behaviours could play a key role in maintaining the distress often associated with psychotic experiences and therefore a greater understanding of this area could be useful in promoting treatments and recovery. The aim of this project is to explore using qualitative interviews the nature of the safety seeking behaviours that people use to cope with their distressing psychotic experiences. This will help us with further research in the future.

2. Why have I been given this information?
We are looking for people to take part in this study who have experience of schizophrenia, schizoaffective disorder, psychosis or other psychotic-like experiences who would be willing to discuss some of their distressing experiences and how they have responded to these with the researcher.

3. Do I have to take part?
No. As entry to the study is entirely voluntary, it is up to you to decide whether or not to take part. You should not feel under any pressure to make
the decision. If you do decide to take part, you will be asked to sign a consent form. Even after signing you are still free to withdraw at any time and without giving a reason. This will not affect any care you may receive now or in the future.

4. **What will happen to me if I take part?**
You will be invited to meet the researcher, Sarah Tully, at a convenient location for you to discuss the study in more detail. Here we will explain the exact nature of the research, explain our reasons for conducting this study and answer any questions you may have. If you decide that you wish to participate in this study you will be asked to sign a consent form. Following this, you will be met again by the researcher and talk to them for about 1 to 2 hours about your current or past distressing experiences. This interview can be completed at one meeting or spread across two meetings if you prefer. Interviews will be audio recorded by the researcher and transcribed. The audio-recordings will be kept confidentially in a locked cabinet and destroyed at the end of the study.

5. **What are the advantages and disadvantages to taking part?**
If you take part in the study, it is hoped that the opportunity to discuss your experiences might be helpful to you. However, it is also possible that talking about some of these issues may be upsetting. You will have the opportunity to discuss any concerns you have with the researcher and you are free to withdraw from the study at any point. You can also talk to your CPN, GP or psychiatrist about participation in this study and any concerns you may have.

6. **Will taking part in the study cost me anything?**
No. The study will only involve your time. In order to compensate you for this and any expenses incurred, you will receive a payment of £10 at the end of the interview.

7. **Will my taking part in the study be kept confidential?**
Yes. We will follow ethical and legal practice and all information about you will be handled in confidence. Personally identifying information will be stored in paper and electronic format and will be stored separately from research data (the interviews you complete). All personally identifiable information will be kept confidentially and securely; information that is in paper format will be kept in a locked filing cabinet in a locked office on NHS or University premises. Personally identifiable information that is stored electronically will be kept on a secure, encrypted USB drive. All transmission and storage of participant identifying data complies with current relevant NHS security standards.

8. **Who will have access to information collected about me during this study?**
We will ask your clinician whether you have a diagnosis and what it is. This is because it will help us understand whether experiences are similar or different across different diagnoses.

Your information (written and audio-taped) from the study will be as confidential as your medical records. The information that you provide (research data such as interviews and audio recordings) will not be shared with other people i.e. medical staff or people involved in your care unless you say it is OK to do so. The only instance in which information you provide may be shared is if you provide us with information which indicates that either yourself or another person is at risk of harm, in which case we would need to share this information with another person involved in your care such as your care coordinator, psychiatrist or your GP. However, we would ALWAYS discuss this with you beforehand.

9. **What will happen to the results of the research?**
After the study is completed, we will analyse the results and submit them for publication in a scientific journal. Presentations may also be given at scientific conferences. Results will be used to improve services. You will not be identified in any publication or presentation. If you wish to know the outcome of our research please let us know.

10. **Who is organising the research?**
The chief investigator is Sarah Tully from the School of Psychological Sciences Department at the University of Manchester working under the supervision of Professor Tony Morrison. This study has been approved by the NRES Committee North West – Greater Manchester West.

11. **What do I do if I wish to make a complaint?**
If you have a concern about any aspect of this study, you should ask to speak to the researchers who will do their best to answer your questions. If they are unable to resolve your concern or you wish to make a complaint regarding the study, please contact a University Research Practice and Governance Co-ordinator on 0161 275 7583 or 0161 275 8093 or by email to research.complaints@manchester.ac.uk.

Please keep this information sheet for future reference.

**Thank you** for considering this proposal.

**If you want to discuss this study any further, please contact either:**

Sarah Tully (Assistant Psychologist – Research)
07584 273 963
sarah.tully@postgrad.manchester.ac.uk

Professor Tony Morrison (Supervisor):
0161 772 464
Appendix Two: Study One Consent Form

Participant Identification Number:

CONSENT FORM

Title of Project: A qualitative exploration into the nature of safety seeking behaviours

Name of Researcher: Sarah Tully

1. I confirm that I have read and understand the information sheet dated 28.09.2013 (version 2) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without my medical care or legal rights being affected.

3. I understand that data collected during the study may be looked at by individuals from The University of Manchester, from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records.

4. I agree to interviews being audio-recorded by the researcher.

5. I agree to anonymised quotes being used in any presentation or publication of this research as long as this does not identify me.

6. I agree to take part in the above study.
7. Please initial this box if you would like to receive a summary of the results once the study has been completed

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Appendix Three: Study One Topic Guide

Background

Would you be able to tell me a bit about yourself and your experiences? Has anything been bothering you recently?

How does it make you feel?

Why is this happening?

Can you tell me what a normal day is like for you? What do you do? Anything you find difficult to do? How do you feel around other people? Anything you are doing more / less of than you used to?

Do you worry about anything bad happening?

What is the worst that could happen? How /why would this happen?

Has this ever happened? Can you tell me about this? What was it like / how did you feel / what did you do?

What do you do when you feel anxious? Does this help?

Responses

You mentioned (feared outcome) what do you do when you feel like this is happening / about to happen? Is there anything that you do to cope or to stop something bad from happening?

What would happen if you didn’t do this?

How does this (response) work / stop (feared outcome) from happening?

How / why did you decide to use this (response) rather than anything else?

Can you think of the last time you felt under threat / carried out (response), can you talk me through what happened / how you felt (before and after using response) / what you did? How often do you use it? How long have you been using it? What happens when you do it (response)?

How important is it that you do (response)? Why?

Do you think about carrying it out or does it happen automatically?

Do you have to use (response) or is it just knowing that it is available that’s important?

Has there ever been a time you haven’t been able to use this response? Can you tell me what happened? What did that mean for you / how did it make you feel? What happened
as a consequence of not being able to use (response)? What was the worst thing about this?

Have you told anyone about this (feared outcome / response)? What do other people think of you doing (response)? How do people react when you tell them / they see you doing (response)? Do other people use responses like this?

Have people helped you to carry out safety seeking behaviours?

**Advantages and Disadvantages**

How helpful / effective is (response)? What are the advantages? What is the best thing about doing it? Why is this important to you?

Are there any disadvantages of doing (response)? What is the worst thing about doing it? What is so bad about that (worst thing)?

Have you had to make any changes to your life in order to keep using (response)? What was this like for you?

Have there been any situations / times when you have found (response) more useful than others? Can you tell me about this? Have there been any situations / times when you have found (response) less useful? Can you describe this? What was different about these situations?

What are the immediate benefits of (response)? What are the longer term benefits of (response)? Is there a difference?

**Alternatives**

If you were stopped from (response) from now on, what would you do instead? Can you tell me what this would be like? How would you feel / what would happen?

Have you thought of any alternative ways of responding / coping instead of (response)?

Have you tried other ways of coping in the past before using this (response)? Can you tell me about a situation when you did this? What changed / why did you stop using this response?

How do you tell the difference between helpful and unhelpful ways of responding?

How do you know (response) is stopping (feared outcome) from happening? Can you think of a specific incident that gave you evidence for this? Could anything else be contributing to stopping (feared outcome)?

Have there been times when things were better or worse than they are now? Can you tell me about this? What was different?
Do you see anything changing in the way you respond in the future? What would have to happen for you to stop (response)?

**Perspectives on significance**

Has your perception of how helpful your responses are changed at different times? Or how important they are?

Does this depend on how well you feel or for any other reason? What changed your views?

Some people have described a continuum from responses being very important with extreme consequences of not using to using as a tool to be able to live a normal life to not using but knowing it’s there if needed to feeling that actually the response isn’t needed / helpful anymore. What do you think of this?

Do you feel you only move down this continuum in one direction or could you move in both ways? What would influence this? What is the timescale?

**Experience of CBT**

Have you ever had any CBT or other kind of therapy?

How were safety behaviours presented to you in therapy? How did you find this?

What was helpful about it?

What was unhelpful about it?

Overall how did the experience make you feel?

Have your views about your responses changed as a result of having CBT?

**Past experience**

If mentioned: Does this link to current responses? In what way?

How did past experiences lead to current responses?

**Development of responses**

How did your response styles develop?

Did this relate to past experiences?

How important was it for you to develop your own ways of coping / responding?
How common are your response styles? Are they things other people would do to cope or is something different about them?

Voices vs beliefs

Do you have different ways of coping with voices as compared to........(belief)?

Ask about internal / external strategies reported in previous interviews (e.g. – how present self to others / controlling mind)

Resistance and engagement

Are these strategies used? How are they used?

What types of situations would you use these responses in? If in response to voices, different types of voices?

How does it make you feel when you respond in this way? Impact on voice?
Appendix Four: The PANSS

POSITIVE AND NEGATIVE SYNDROME SCALE (PANSS) RATING CRITERIA

GENERAL RATING INSTRUCTIONS

Data gathered from this assessment procedure are applied to the PANSS ratings. Each of the 30 items is accompanied by a specific definition as well as detailed anchoring criteria for all seven rating points. These seven points represent increasing levels of psychopathology, as follows:

1. absent
2. minimal
3. mild
4. moderate
5. moderate severe
6. severe
7. extreme

In assigning ratings, one first considers whether an item is at all present, as judging by its definition. If the item is absent, it is scored 1, whereas if it is present one must determine its severity by reference to the particular criteria from the anchoring points. The highest applicable rating point is always assigned, even if the patient meets criteria for lower points as well. In judging the level of severity, the rater must utilise a holistic perspective in deciding which anchoring point best characterises the patient’s functioning and rate accordingly, whether or not all elements of the description are observed.

The rating points of 2 to 7 correspond to incremental levels of symptom severity:

- A rating of 2 (minimal) denotes questionable or subtle or suspected pathology, or it also may allude to the extreme end of the normal range.
- A rating of 3 (mild) is indicative of a symptom whose presence is clearly established but not pronounced and interferes little in day-today functioning.
- A rating of 4 (moderate) characterises a symptom which, though representing a serious problem, either occurs only occasionally or intrudes on daily life only to a moderate extent.
- A rating of 5 (moderate severe) indicates marked manifestations that distinctly impact on one’s functioning but are not all-consuming and usually can be contained at will.
- A rating of 6 (severe) represents gross pathology that is present very frequently, proves highly disruptive to one’s life, and often calls for direct supervision.
- A rating of 7 (extreme) refers to the most serious level of psychopathology, whereby the manifestations drastically interfere in most
or all major life functions, typically necessitating close supervision and assistance in many areas.

Each item is rated in consultation with the definitions and criteria provided in this manual. The ratings are rendered on the PANSS rating form overleaf by encircling the appropriate number following each dimension.

**SCORING INSTRUCTIONS**

Of the 30 items included in the PANSS, 7 constitute a Positive Scale, 7 a Negative Scale, and the remaining 16 a General Psychopathology Scale. The scores for these scales are arrived at by summation of ratings across component items. Therefore, the potential ranges are 7 to 49 for the Positive and Negative Scales, and 16 to 112 for the General Psychopathology Scale. In addition to these measures, a Composite Scale is scored by subtracting the negative score from the positive score. This yields a bipolar index that ranges from −42 to +42, which is essentially a difference score reflecting the degree of predominance of one syndrome in relation to the other.

**POSITIVE SCALE (P)**

**P1.** **DELUSIONS** - Beliefs which are unfounded, unrealistic and idiosyncratic.

**Basis for rating** - Thought content expressed in the interview and its influence on social relations and behaviour.

1 **Absent** - Definition does not apply

2 **Minimal** - Questionable pathology; may be at the upper extreme of normal limits

3 **Mild** - Presence of one or two delusions which are vague, uncrySTALLised and not tenaciously held. Delusions do not interfere with thinking, social relations or behaviour.

4 **Moderate** - Presence of either a kaleidoscopic array of poorly formed, unstable delusions or a few well-formed delusions that occasionally interfere with thinking, social relations or behaviour.

5 **Moderate Severe** - Presence of numerous well-formed delusions that are tenaciously held and occasionally interfere with thinking, social relations and behaviour.

6 **Severe** - Presence of a stable set of delusions which are crystallised, possibly systematised, tenaciously held and clearly interfere with thinking, social relations and behaviour.

7 **Extreme** - Presence of a stable set of delusions which are either highly systematised or very numerous, and which dominate major facets of the patient’s life. This frequently results in inappropriate and irresponsible action, which may even jeopardise the safety of the patient or others.
### P2. Conceptual Disorganisation

Disorganised process of thinking characterised by disruption of goal-directed sequencing, e.g. circumstantiality, loose associations, tangentiality, gross illogicality or thought block.

**Basis for rating** - Cognitive-verbal processes observed during the course of interview.

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Absent - Definition does not apply</td>
</tr>
<tr>
<td>2</td>
<td>Minimal - Questionable pathology; may be at the upper extreme of normal limits</td>
</tr>
<tr>
<td>3</td>
<td>Mild - Thinking is circumstantial, tangential or paralogical. There is some difficulty in directing thoughts towards a goal, and some loosening of associations may be evidenced under pressure.</td>
</tr>
<tr>
<td>4</td>
<td>Moderate - Able to focus thoughts when communications are brief and structured, but becomes loose or irrelevant when dealing with more complex communications or when under minimal pressure.</td>
</tr>
<tr>
<td>5</td>
<td>Moderate Severe - Generally has difficulty in organising thoughts, as evidenced by frequent irrelevancies, disconnectedness or loosening of associations even when not under pressure.</td>
</tr>
<tr>
<td>6</td>
<td>Severe - Thinking is seriously derailed and internally inconsistent, resulting in gross irrelevancies and disruption of thought processes, which occur almost constantly.</td>
</tr>
<tr>
<td>7</td>
<td>Extreme - Thoughts are disrupted to the point where the patient is incoherent. There is marked loosening of associations, which result in total failure of communication, e.g. “word salad” or mutism.</td>
</tr>
</tbody>
</table>

### P3. Hallucinatory Behaviour

Verbal report or behaviour indicating perceptions which are not generated by external stimuli. These may occur in the auditory, visual, olfactory or somatic realms. **Basis for rating** - Verbal report and physical manifestations during the course of interview as well as reports of behaviour by primary care workers or family.

<table>
<thead>
<tr>
<th>Level</th>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Absent - Definition does not apply</td>
</tr>
<tr>
<td>2</td>
<td>Minimal - Questionable pathology; may be at the upper extreme of normal limits</td>
</tr>
<tr>
<td>3</td>
<td>Mild - One or two clearly formed but infrequent hallucinations, or else a number of vague abnormal perceptions which do not result in distortions of thinking or behaviour.</td>
</tr>
<tr>
<td>4</td>
<td>Moderate - Hallucinations occur frequently but not continuously, and the patient’s thinking and behaviour are only affected to a minor extent.</td>
</tr>
<tr>
<td>5</td>
<td>Moderate Severe - Hallucinations occur frequently, may involve more than one sensory modality, and tend to distort thinking and/or disrupt behaviour. Patient may have a delusional interpretation of these experiences and respond to them emotionally and, on occasion, verbally as well.</td>
</tr>
<tr>
<td>6</td>
<td>Severe - Hallucinations are present almost continuously, causing major disruption of thinking and behaviour. Patient treats these as real perceptions, and functioning is impeded by frequent emotional and verbal responses to them.</td>
</tr>
<tr>
<td>7</td>
<td>Extreme - Patient is almost totally preoccupied with hallucinations, which virtually dominate thinking and behaviour. Hallucinations are provided a rigid delusional interpretation and provoke verbal and behavioural responses, including obedience to command hallucinations.</td>
</tr>
</tbody>
</table>
**P4. EXCITEMENT** - Hyperactivity as reflected in accelerated motor behaviour, heightened responsivity to stimuli, hypervigilance or excessive mood lability.

**Basis for rating** - Behavioural manifestations during the course of interview as well as reports of behaviour by primary care workers or family.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - Tends to be slightly agitated, hypervigilant or mildly overaroused throughout the interview, but without distinct episodes of excitement or marked mood lability. Speech may be slightly pressured.
4. **Moderate** - Agitation or overarousal is clearly evident throughout the interview, affecting speech and general mobility, or episodic outbursts occur sporadically.
5. **Moderate Severe** - Significant hyperactivity or frequent outbursts of motor activity are observed, making it difficult for the patient to sit still for longer than several minutes at any given time.
6. **Severe** - Marked excitement dominates the interview, delimits attention, and to some extent affects personal functions such as eating or sleeping.
7. **Extreme** - Marked excitement seriously interferes in eating and sleeping and makes interpersonal interactions virtually impossible. Acceleration of speech and motor activity may result in incoherence and exhaustion.

**P5. GRANDIOSITY** - Exaggerated self-opinion and unrealistic convictions of superiority, including delusions of extraordinary abilities, wealth, knowledge, fame, power and moral righteousness. **Basis for rating** - Thought content expressed in the interview and its influence on behaviour.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - Some expansiveness or boastfulness is evident, but without clear-cut grandiose delusions.
4. **Moderate** - Feels distinctly and unrealistically superior to others. Some poorly formed delusions about special status or abilities may be present but are not acted upon.
5. **Moderate Severe** - Clear-cut delusions concerning remarkable abilities, status or power are expressed and influence attitude but not behaviour.
6. **Severe** - Clear-cut delusions of remarkable superiority involving more than one parameter (wealth, knowledge, fame, etc) are expressed, notably influence interactions and may be acted upon.
7. **Extreme** - Thinking, interactions and behaviour are dominated by multiple delusions of amazing ability, wealth, knowledge, fame, power and/or moral stature, which may take on a bizarre quality.
**P6. SUSPICIOUSNESS/PERSECUTION** - Unrealistic or exaggerated ideas of persecution, as reflected in guardedness, ad distrustful attitude, suspicious hypervigilance or frank delusions that others mean harm.

**Basis for rating** – Thought content expressed in the interview and its influence on behaviour.

1 **Absent** - Definition does not apply
2 **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3 **Mild** - Presents a guarded or even openly distrustful attitude, but thoughts, interactions and behaviour are minimally affected.
4 **Moderate** - Distrustfulness is clearly evident and intrudes on the interview and/or behaviour, but there is no evidence of persecutory delusions. Alternatively, there may be indication of loosely formed persecutory delusions, but these do not seem to affect the patient’s attitude or interpersonal relations.
5 **Moderate Severe** - Patient shows marked distrustfulness, leading to major disruption of interpersonal relations, or else there are clear-cut persecutory delusions that have limited impact on interpersonal relations and behaviour.
6 **Severe** - Clear-cut pervasive delusions of persecution which may be systematised and significantly interfere in interpersonal relations.
7 **Extreme** - A network of systematised persecutory delusions dominates the patient’s thinking, social relations and behaviour.

**P7. HOSTILITY** - Verbal and nonverbal expressions of anger and resentment, including sarcasm, passive-aggressive behaviour, verbal abuse and assaultiveness.

**Basis for rating** – Interpersonal behaviour observed during the interview and reports by primary care workers or family.

1 **Absent** - Definition does not apply
2 **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3 **Mild** - Indirect or restrained communication of anger, such as sarcasm, disrespect, hostile expressions and occasional irritability.
4 **Moderate** - Presents an overtly hostile attitude, showing frequent irritability and direct expression of anger or resentment.
5 **Moderate Severe** - Patient is highly irritable and occasionally verbally abusive or threatening.
6 **Severe** - Uncooperativeness and verbal abuse or threats notably influence the interview and seriously impact upon social relations. Patient may be violent and destructive but is not physically assultative towards others.
7 **Extreme** - Marked anger results in extreme uncooperativeness, precluding other interactions, or in episode(s) of physical assault towards others.
**NEGATIVE SCALE (N)**

**N1. BLUNTED AFFECT** - Diminished emotional responsiveness as characterised by a reduction in facial expression, modulation of feelings and communicative gestures. **Basis for rating** - Observation of physical manifestations of affective tone and emotional responsiveness during the course of the interview.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - Changes in facial expression and communicative gestures seem to be stilted, forced, artificial or lacking in modulation.
4. **Moderate** - Reduced range of facial expression and few expressive gestures result in a dull appearance
5. **Moderate Severe** - Affect is generally ‘flat’ with only occasional changes in facial expression and a paucity of communicative gestures.
6. **Severe** - Marked flatness and deficiency of emotions exhibited most of the time. There may be unmodulated extreme affective discharges, such as excitement, rage or inappropriate uncontrolled laughter.
7. **Extreme** – Changes in facial expression and evidence of communicative gestures are virtually absent. Patient seems constantly to show a barren or ‘wooden’ expression.

**N2. EMOTIONAL WITHDRAWAL** - Lack of interest in, involvement with, and affective commitment to life’s events.

**Basis for rating** - Reports of functioning from primary care workers or family and observation of interpersonal behaviour during the course of the interview.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - Usually lack initiative and occasionally may show deficient interest in surrounding events.
4. **Moderate** - Patient is generally distanced emotionally from the milieu and its challenges but, with encouragement, can be engaged.
5. **Moderate Severe** - Patient is clearly detached emotionally from persons and events in the milieu, resisting all efforts at engagement. Patient appears distant, docile and purposeless but can be involved in communication at least briefly and tends to personal needs, sometimes with assistance.
6. **Severe** - Marked deficiency of interest and emotional commitment results in limited conversation with others and frequent neglect of personal functions, for which the patient requires supervision.
7. **Extreme** – Patient is almost totally withdrawn, uncommunicative and neglectful of personal needs as a result of profound lack of interest and emotional commitment.
N3. **POOR RAPPORT** - Lack of interpersonal empathy, openness in conversation and sense of closeness, interest or involvement with the interviewer. This is evidenced by interpersonal distancing and reduced verbal and nonverbal communication.

**Basis for rating** - Interpersonal behaviour during the course of the interview.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - Conversation is characterised by a stilted, strained or artificial tone. It may lack emotional depth or tend to remain on an impersonal, intellectual plane.
4. **Moderate** - Patient typically is aloof, with interpersonal distance quite evident. Patient may answer questions mechanically, act bored, or express disinterest.
5. **Moderate Severe** - Disinvolvement is obvious and clearly impedes the productivity of the interview. Patient may tend to avoid eye or face contact.
6. **Severe** - Patient is highly indifferent, with marked interpersonal distance. Answers are perfunctory, and there is little nonverbal evidence of involvement. Eye and face contact are frequently avoided.
7. **Extreme** - Patient is totally uninvolved with the interviewer. Patient appears to be completely indifferent and consistently avoids verbal and nonverbal interactions during the interview.

N4. **PASSIVE/APATHETIC SOCIAL WITHDRAWAL** - Diminished interest and initiative in social interactions due to passivity, apathy, anergy or avolition. This leads to reduced interpersonal involvements and neglect of activities of daily living.

**Basis for rating** – Reports on social behaviour from primary care workers or family.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - Shows occasional interest in social activities but poor initiative. Usually engages with others only when approached first by them.
4. **Moderate** – Passively goes along with most social activities but in a disinterested or mechanical way. Tends to recede into the background.
5. **Moderate Severe** - Passively participates in only a minority of activities and shows virtually no interest or initiative. Generally spends little time with others.
6. **Severe** - Tends to be apathetic and isolated, participating very rarely in social activities and occasionally neglecting personal needs. Has very few spontaneous social contacts.
7. **Extreme** – Profoundly apathetic, socially isolated and personally neglectful.
DIFFICULTY IN ABSTRACT THINKING - Impairment in the use of the abstract-symbolic mode of thinking, as evidenced by difficulty in classification, forming generalisations and proceeding beyond concrete or egocentric thinking in problem-solving tasks.

**Basis for rating** - Responses to questions on similarities and proverb interpretation, and use of concrete vs. abstract mode during the course of the interview.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - Tends to give literal or personalised interpretations to the more difficult proverbs and may have some problems with concepts that are fairly abstract or remotely related.
4. **Moderate** - Often utilises a concrete mode. Has difficulty with most proverbs and some categories. Tends to be distracted by functional aspects and salient features.
5. **Moderate Severe** - Deals primarily in a concrete mode, exhibiting difficulty with most proverbs and many categories.
6. **Severe** - Unable to grasp the abstract meaning of any proverbs or figurative expressions and can formulate classifications for only the most simple of similarities. Thinking is either vacuous or locked into functional aspects, salient features and idiosyncratic interpretations.
7. **Extreme** - Can use only concrete modes of thinking. Shows no comprehension of proverbs, common metaphors or similes, and simple categories. Even salient and functional attributes do not serve as a basis for classification. This rating may apply to those who cannot interact even minimally with the examiner due to marked cognitive impairment.

LACK OF SPONTANEITY AND FLOW OF CONVERSATION - Reduction in the normal flow of communication associated with apathy, avolition, defensiveness or cognitive deficit. This is manifested by diminished fluidity and productivity of the verbal interactional process.

**Basis for rating** - Cognitive-verbal processes observed during the course of interview.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - Conversation shows little initiative. Patient's answers tend to be brief and unembellished, requiring direct and leading questions by the interviewer.
4. **Moderate** - Conversation lacks free flow and appears uneven or halting. Leading questions are frequently needed to elicit adequate responses and proceed with conversation.
5. **Moderate Severe** - Patient shows a marked lack of spontaneity and openness, replying to the interviewer's questions with only one or two brief sentences.
6. **Severe** - Patient’s responses are limited mainly to a few words or short phrases intended to avoid or curtail communication. (e.g. “I don’t know”, “I’m not at liberty to say”). Conversation is seriously impaired as a result and the interview is highly unproductive.
7. **Extreme** - Verbal output is restricted to, at most, an occasional utterance, making conversation not possible.
N7. **STEREOTYPED THINKING** - Decreased fluidity, spontaneity and flexibility of thinking, as evidenced in rigid, repetitious or barren thought content.

**Basis for rating** - Cognitive-verbal processes observed during the interview.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - Some rigidity shown in attitude or beliefs. Patient may refuse to consider alternative positions or have difficulty in shifting from one idea to another.
4. **Moderate** - Conversation revolves around a recurrent theme, resulting in difficulty in shifting to a new topic.
5. **Moderate Severe** - Thinking is rigid and repetitious to the point that, despite the interviewer's efforts, conversation is limited to only two or three dominating topics.
6. **Severe** - Uncontrolled repetition of demands, statements, ideas or questions which severely impairs conversation.
7. **Extreme** - Thinking, behaviour and conversation are dominated by constant repetition of fixed ideas or limited phrases, leading to gross rigidity, inappropriateness and restrictiveness of patient's communication.
### GENERAL PSYCHOPATHOLOGY SCALE (G)

#### G1. SOMATIC CONCERN

Physical complaints or beliefs about bodily illness or malfunctions. This may range from a vague sense of ill being to clear-cut delusions of catastrophic physical disease. **Basis for rating** - Thought content expressed in the interview.

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>1 Absent</td>
<td>Definition does not apply</td>
</tr>
<tr>
<td>2 Minimal</td>
<td>Questionable pathology; may be at the upper extreme of normal limits</td>
</tr>
<tr>
<td>3 Mild</td>
<td>Distinctly concerned about health or bodily malfunction, but there is no delusional conviction and overconcern can be allayed by reassurance.</td>
</tr>
<tr>
<td>4 Moderate</td>
<td>Complains about poor health or bodily malfunction, but there is no delusional conviction, and overconcern can be allayed by reassurance.</td>
</tr>
<tr>
<td>5 Moderate Severe</td>
<td>Patient expresses numerous or frequent complaints about physical illness or bodily malfunction, or else patient reveals one or two clear-cut delusions involving these themes but is not preoccupied by them.</td>
</tr>
<tr>
<td>6 Severe</td>
<td>Patient is preoccupied by one or a few clear-cut delusions about physical disease or organic malfunction, but affect is not fully immersed in these themes, and thoughts can be diverted by the interviewer with some effort.</td>
</tr>
<tr>
<td>7 Extreme</td>
<td>Numerous and frequently reported somatic delusions, or only a few somatic delusions of a catastrophic nature, which totally dominate the patient’s affect or thinking.</td>
</tr>
</tbody>
</table>

#### G2. ANXIETY

Subjective experience of nervousness, worry, apprehension or restlessness, ranging from excessive concern about the present or future to feelings of panic. **Basis for rating** - Verbal report during the course of interview and corresponding physical manifestations.

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>1 Absent</td>
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</tr>
<tr>
<td>2 Minimal</td>
<td>Questionable pathology; may be at the upper extreme of normal limits</td>
</tr>
<tr>
<td>3 Mild</td>
<td>Expresses some worry, overconcern or subjective restlessness, but no somatic and behavioural consequences are reported or evidenced.</td>
</tr>
<tr>
<td>4 Moderate</td>
<td>Patient reports distinct symptoms of nervousness, which are reflected in mild physical manifestations such as fine hand tremor and excessive perspiration.</td>
</tr>
<tr>
<td>5 Moderate Severe</td>
<td>Patient reports serious problems of anxiety which have significant physical and behavioural consequences, such as marked tension, poor concentration, palpitations or impaired sleep.</td>
</tr>
<tr>
<td>6 Severe</td>
<td>Subjective state of almost constant fear associated with phobias, marked restlessness or numerous somatic manifestations.</td>
</tr>
<tr>
<td>7 Extreme</td>
<td>Patient’s life is seriously disrupted by anxiety, which is present almost constantly and at times reaches panic proportion or is manifested in actual panic attacks.</td>
</tr>
</tbody>
</table>
G3. **GUILT FEELINGS** - Sense of remorse or self-blame for real or imagined misdeeds in the past. **Basis for rating** - Verbal report of guilt feelings during the course of interview and the influence on attitudes and thoughts.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** – Questioning elicits a vague sense of guilt or self-blame for a minor incident, but the patient clearly is not overly concerned.
4. **Moderate** - Patient expresses distinct concern over his responsibility for a real incident in his life but is not pre-occupied with it and attitude and behaviour are essentially unaffected.
5. **Moderate Severe** - Patient expresses a strong sense of guilt associated with self-deprecation or the belief that he deserves punishment. The guilt feelings may have a delusional basis, may be volunteered spontaneously, may be a source of preoccupation and/or depressed mood, and cannot be allayed readily by the interviewer.
6. **Severe** - Strong ideas of guilt take on a delusional quality and lead to an attitude of hopelessness or worthlessness. The patient believes he should receive harsh sanctions as such punishment.
7. **Extreme** - Patient's life is dominated by unshakable delusions of guilt, for which he feels deserving of drastic punishment, such as life imprisonment, torture, or death. There may be associated suicidal thoughts or attribution of others’ problems to one's own past misdeeds.

G4. **TENSION** - Overt physical manifestations of fear, anxiety, and agitation, such as stiffness, tremor, profuse sweating and restlessness.

**Basis for rating** - Verbal report attesting to anxiety and thereupon the severity of physical manifestations of tension observed during the interview.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - Posture and movements indicate slight apprehensiveness, such as minor rigidity, occasional restlessness, shifting of position, or fine rapid hand tremor.
4. **Moderate** - A clearly nervous appearance emerges from various manifestations, such as fidgety behaviour, obvious hand tremor, excessive perspiration, or nervous mannerisms.
5. **Moderate Severe** - Pronounced tension is evidenced by numerous manifestations, such as nervous shaking, profuse sweating and restlessness, but can conduct in the interview is not significantly affected.
6. **Severe** - Pronounced tension to the point that interpersonal interactions are disrupted. The patient, for example, may be constantly fidgeting, unable to sit still for long, or show hyperventilation.
7. **Extreme** - Marked tension is manifested by signs of panic or gross motor acceleration, such as rapid restless pacing and inability to remain seated for longer than a minute, which makes sustained conversation not possible.
G5. MANNERISMS AND POSTURING – Unnatural movements or posture as characterised be an awkward, stilted, disorganised, or bizarre appearance.

Basis for rating - Observation of physical manifestations during the course of interview as well as reports from primary care workers or family.

1 Absent - Definition does not apply
2 Minimal - Questionable pathology; may be at the upper extreme of normal limits
3 Mild - Slight awkwardness in movements or minor rigidity of posture
4 Moderate – Movements are notably awkward or disjointed, or an unnatural posture is maintained for brief periods.
5 Moderate Severe - Occasional bizarre rituals or contorted posture are observed, or an abnormal position is sustained for extended periods.
6 Severe - Frequent repetition of bizarre rituals, mannerisms or stereotyped movements, or a contorted posture is sustained for extended periods.
7 Extreme - Functioning is seriously impaired by virtually constant involvement in ritualistic, manneristic, or stereotyped movements or by an unnatural fixed posture which is sustained most of the time.

G6. DEPRESSION - Feelings of sadness, discouragement, helplessness and pessimism.

Basis for rating - Verbal report of depressed mood during the course of interview and its observed influence on attitude and behaviour.

1 Absent - Definition does not apply
2 Minimal - Questionable pathology; may be at the upper extreme of normal limits
3 Mild - Expresses some sadness of discouragement only on questioning, but there is no evidence of depression in general attitude or demeanor.
4 Moderate - Distinct feelings of sadness or hopelessness, which may be spontaneously divulged, but depressed mood has no major impact on behaviour or social functioning and the patient usually can be cheered up.
5 Moderate Severe - Distinctly depressed mood is associated with obvious sadness, pessimism, loss of social interest, psychomotor retardation and some interference in appetite and sleep. The patient cannot be easily cheered up.
6 Severe - Markedly depressed mood is associated with sustained feelings of misery, occasional crying, hopelessness and worthlessness. In addition, there is major interference in appetite and or sleep as well as in normal motor and social functions, with possible signs of self-neglect.
7 Extreme - Depressive feelings seriously interfere in most major functions. The manifestations include frequent crying, pronounced somatic symptoms, impaired concentration, psychomotor retardation, social disinterest, self neglect, possible depressive or nihilistic delusions and/or possible suicidal thoughts or action.
G7. **Motor Retardation** – Reduction in motor activity as reflected in slowing or lessening or movements and speech, diminished responsiveness of stimuli, and reduced body tone.

**Basis for rating** - Manifestations during the course of interview as well as reports by primary care workers as well as family.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - Slight but noticeable diminution in rate of movements and speech. Patient may be somewhat underproductive in conversation and gestures.
4. **Moderate** - Patient is clearly slow in movements, and speech may be characterised by poor productivity including long response latency, extended pauses or slow pace.
5. **Moderate Severe** – A marked reduction in motor activity renders communication highly unproductive or delimits functioning in social and occupational situations. Patient can usually be found sitting or lying down.
6. **Severe** - Movements are extremely slow, resulting in a minimum of activity and speech. Essentially the day is spent sitting idly or lying down.
7. **Extreme** - Patient is almost completely immobile and virtually unresponsive to external stimuli.

G8. **Uncooperativeness** - Active refusal to comply with the will of significant others, including the interviewer, hospital staff or family, which may be associated with distrust, defensiveness, stubbornness, negativism, rejection of authority, hostility or belligerence.

**Basis for rating** - Interpersonal behaviour observed during the course of the interview as well as reports by primary care workers or family.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - Complies with an attitude of resentment, impatience, or sarcasm. May inoffensively object to sensitive probing during the interview.
4. **Moderate** - Occasional outright refusal to comply with normal social demands, such as making own bed, attending scheduled programmes, etc. The patient may project a hostile, defensive or negative attitude but usually can be worked with.
5. **Moderate Severe** - Patient frequently is incompliant with the demands of his milieu and may be characterised by other as an “outcast” or having “a serious attitude problem”. Uncooperativeness is reflected in obvious defensiveness or irritability with the interviewer and possible unwillingness to address many questions.
6. **Severe** - Patient is highly uncooperative, negativistic and possibly also belligerent. Refuses to comply with the most social demands and may be unwilling to initiate or conclude the full interview.
7. **Extreme** - Active resistance seriously impact on virtually all major areas of functioning. Patient may refuse to join in any social activities, tend to personal hygiene, converse with family or staff and participate even briefly in an interview.
### G9. **UNUSUAL THOUGHT CONTENT** - Thinking characterised by strange, fantastic or bizarre ideas, ranging from those which are remote or atypical to those which are distorted, illogical and patently absurd. **Basis for rating** - Thought content expressed during the course of interview.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - Thought content is somewhat peculiar, or idiosyncratic, or familiar ideas are framed in an odd context.
4. **Moderate** - Ideas are frequently distorted and occasionally seem quite bizarre.
5. **Moderate Severe** - Patient expresses many strange and fantastic thoughts, (e.g. Being the adopted son of a king, being an escapee from death row), or some which are patently absurd (e.g. Having hundreds of children, receiving radio messages from outer space from a tooth filling).
6. **Severe** - Patient expresses many illogical or absurd ideas or some which have a distinctly bizarre quality (e.g. having three heads, being a visitor from another planet).
7. **Extreme** - Thinking is replete with absurd, bizarre and grotesque ideas.

### G10. **DISORIENTATION** - Lack of awareness of one’s relationship to the milieu, including persons, place and time, which may be due to confusion or withdrawal. **Basis for rating** - Responses to interview questions on orientation.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - General orientation is adequate but there is some difficulty with specifics. For example, patient knows his location but not the street address, knows hospital staff names but not their functions, knows the month but confuses the day of the week with an adjacent day, or errs in the date by more than two days. There may be narrowing of interest evidenced by familiarity with the immediate but not extended milieu, such as ability to identify staff but not the mayor, governor, or president.
4. **Moderate** - Only partial success in recognising persons, places and time. For example, patient knows he is in a hospital but not its name, knows the name of the city but not the borough or district, knows the name of his primary therapist but not many other direct care workers, knows the year or season but not sure of the month.
5. **Moderate Severe** - Considerable failure in recognising persons, place and time. Patient has only a vague notion of where he is and seems unfamiliar with most people in his milieu. He may identify the year correctly or nearly but not know the current month, day of week or even the season.
6. **Severe** - Marked failure in recognising persons, place and time. For example, patient has no knowledge of his whereabouts, confuses the date by more than one year, can name only one or two individuals in his current life.
7. **Extreme** - Patient appears completely disorientated with regard to persons, place and time. There is gross confusion or total ignorance about one’s location, the current year and even the most familiar people, such as parents, spouse, friends and primary therapist.
G11. **POOR ATTENTION** - Failure in focused alertness manifested by poor concentration, distractibility from internal and external stimuli, and difficulty in harnessing, sustaining or shifting focus to new stimuli. **Basis for rating** – Manifestations during the course of interview.

1 Absent - Definition does not apply
2 Minimal - Questionable pathology; may be at the upper extreme of normal limits
3 Mild - Limited concentration evidenced by occasional vulnerability to distraction and faltering attention toward the end of the interview.
4 Moderate - Conversation is affected by the tendency to be easily distracted, difficulty in long sustaining concentration on a given topic, or problems in shifting attention to new topics.
5 Moderate Severe - Conversation is seriously hampered by poor concentration, distractibility, and difficulty in shifting focus appropriately.
6 Severe - Patient’s attention can be harnessed for only brief moments or with great effort, due to marked distraction by internal or external stimuli.
7 Extreme - Attention is so disrupted that even brief conversation is not possible.

G12. **LACK OF JUDGEMENT AND INSIGHT** - Impaired awareness or understanding of one’s own psychiatric condition and life situation. This is evidenced by failure to recognise past or present psychiatric illness or symptoms, denial of need for psychiatric hospitalisation or treatment, decisions characterised by poor anticipation or consequences, and unrealistic short-term and long-range planning. **Basis for rating** – Thought content expressed during the interview.

1 Absent - Definition does not apply
2 Minimal - Questionable pathology; may be at the upper extreme of normal limits
3 Mild - Recognises having a psychiatric disorder but clearly underestimates its seriousness, the implications for treatment, or the importance of taking measures to avoid relapse. Future planning may be poorly conceived.
4 Moderate - Patient shows only a vague or shallow recognition of illness. There may be fluctuations in acknowledgement of being ill or little awareness of major symptoms which are present, such as delusions, disorganised thinking, suspiciousness and social withdrawal. The patient may rationalise the need for treatment in terms of its relieving lesser symptoms, such as anxiety, tension and sleep difficulty.
5 Moderate Severe - Acknowledges past but not present psychiatric disorder. If challenged, the patient may concede the presence of some unrelated or insignificant symptoms, which tend to be explained away by gross misinterpretation or delusional thinking. The need for psychiatric treatment similarly goes unrecognised.
6 Severe - Patient denies ever having had a psychiatric disorder. He disavows the presence of any psychiatric symptoms in the past or present and, though compliant, denies the need for treatment and hospitalisation.
7 Extreme - Emphatic denial of past and present psychiatric illness. Current hospitalisation and treatment are given a delusional interpretation (e.g. as punishment for misdeeds, as persecution by tormentors, etc), and the patient thus refuse to cooperate with therapists, medication or other aspects of treatment.
### G13. Disturbance of Volition

- **Disturbance of Volition** – Disturbance in the wilful initiation, sustenance and control of one’s thoughts, behaviour, movements and speech.

**Basis for rating** – Thought content and behaviour manifested in the course of interview.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - There is evidence of some indecisiveness in conversation and thinking, which may impede verbal and cognitive processes to a minor extent.
4. **Moderate** - Patient is often ambivalent and shows clear difficulty in reaching decisions. Conversation may be marred by alteration in thinking, and in consequence, verbal and cognitive functioning are clearly impaired.
5. **Moderate Severe** - Disturbance of volition interferes in thinking as well as behaviour. Patient shows pronounced indecision that impedes the initiation and continuation of social and motor activities, and which also may be evidence in halting speech.
6. **Severe** - Disturbance of volition interferes in the execution of simple automatic motor functions, such as dressing or grooming, and markedly affects speech.
7. **Extreme** – Almost complete failure of volition is manifested by gross inhibition of movement and speech resulting in immobility and/or mutism.

### G14. Poor Impulse Control

- **Poor Impulse Control** - Disordered regulation and control of action on inner urges, resulting in sudden, unmodulated, arbitrary or misdirected discharge of tension and emotions without concern about consequences.

**Basis for rating** – Behaviour during the course of interview and reported by primary care workers or family.

1. **Absent** - Definition does not apply
2. **Minimal** - Questionable pathology; may be at the upper extreme of normal limits
3. **Mild** - Patient tends to be easily angered and frustrated when facing stress or denied gratification but rarely acts on impulse.
4. **Moderate** - Patient gets angered and verbally abusive with minimal provocation. May be occasionally threatening, destructive, or have one or two episodes involving physical confrontation or a minor brawl.
5. **Moderate Severe** - Patient exhibits repeated impulsive episodes involving verbal abuse, destruction of property, or physical threats. There may be one or two episodes involving serious assault, for which the patient requires isolation, physical restraint, or p.r.n. sedation.
6. **Severe** - Patient frequently is impulsive aggressive, threatening, demanding, and destructive, without any apparent consideration of consequences. Shows assultive behaviour and may also be sexually offensive and possibly respond behaviourally to hallucinatory commands.
7. **Extreme** - Patient exhibits homicidal, sexual assaults, repeated brutality, or self-destructive behaviour. Requires constant direct supervision or external constraints because of inability to control dangerous impulses.
**G15. PREOCCUPATION** - Absorption with internally generated thoughts and feelings and with autistic experiences to the detriment of reality orientation and adaptive behaviour. **Basis for rating** - Interpersonal behaviour observed during the course of interview.

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Absent</td>
<td>Definition does not apply</td>
</tr>
<tr>
<td>2 Minimal</td>
<td>Questionable pathology; may be at the upper extreme of normal limits</td>
</tr>
<tr>
<td>3 Mild</td>
<td>Excessive involvement with personal needs or problems, such that conversation veers back to egocentric themes and there is diminished concerned exhibited toward others.</td>
</tr>
<tr>
<td>4 Moderate</td>
<td>Patient occasionally appears self-absorbed, as if daydreaming or involved with internal experiences, which interferes with communication to a minor extent.</td>
</tr>
<tr>
<td>5 Moderate Severe</td>
<td>Patient often appears to be engaged in autistic experiences, as evidenced by behaviours that significantly intrude on social and communicational functions, such as the presence of a vacant stare, muttering or talking to oneself, or involvement with stereotyped motor patterns.</td>
</tr>
<tr>
<td>6 Severe</td>
<td>Marked preoccupation with autistic experiences, which seriously delimits concentration, ability to converse, and orientation to the milieu. The patient frequently may be observed smiling, laughing, muttering, talking, or shouting to himself.</td>
</tr>
<tr>
<td>7 Extreme</td>
<td>Gross absorption with autistic experiences, which profoundly affects all major realms of behaviour. The patient constantly may be responding verbally or behaviourally to hallucinations and show little awareness of other people or the external milieu.</td>
</tr>
</tbody>
</table>

---

**G16. ACTIVE SOCIAL AVOIDANCE** - Diminished social involvement associated with unwarranted fear, hostility, or distrust. **Basis for rating** - Reports of social functioning primary care workers or family.

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Absent</td>
<td>Definition does not apply</td>
</tr>
<tr>
<td>2 Minimal</td>
<td>Questionable pathology; may be at the upper extreme of normal limits</td>
</tr>
<tr>
<td>3 Mild</td>
<td>Patient seems ill at ease in the presence of others of others and prefers to spend time alone, although he participates in social functions when required.</td>
</tr>
<tr>
<td>4 Moderate</td>
<td>Patient begrudgingly attends all or most social activities but may needs to be persuaded or may terminate prematurely on account of anxiety, suspiciousness, or hostility.</td>
</tr>
<tr>
<td>5 Moderate Severe</td>
<td>Patient fearfully or angrily keeps away from many social interactions despite others’ efforts to engage him. Tends to spend unstructured time alone.</td>
</tr>
<tr>
<td>6 Severe</td>
<td>Patient participates in very few social activities because of fear, hostility, or distrust. When approached, the patient shows a strong tendency to break off interactions, and generally he tends to isolate himself from others.</td>
</tr>
<tr>
<td>7 Extreme</td>
<td>Patient cannot be engaged in social activities because of pronounced fears, hostility, or persecutory delusions. To the extent possible, he avoids all interactions and remains isolated from others.</td>
</tr>
</tbody>
</table>
Appendix Five: The PSYRATS

Modified PSYRATS

Beliefs & Voice Hearing Rating Scale

General Instructions

The following structured interview is designed to elicit specific details regarding different dimensions of delusional beliefs and auditory hallucinations. When asking questions, the interview is designed to rate the patients experiences **over the last week** for the majority of items. There is one exception to this. **When rating conviction (Beliefs Question 3), ask the patient about their conviction at the time of the interview.**

Name

DOB

Age

Sex Male Female

Length of time experiencing delusional beliefs (years) ________________

Please specify individual beliefs

________________________________________

________________________________________

________________________________________
### Beliefs Score Sheet

1. Amount of preoccupation
2. Duration of preoccupation
3. Conviction
4. Amount of Distress
5. Intensity of Distress
6. Disruption

### Voice Hearing Scoring Sheet

1. Frequency
2. Duration
3. Location
4. Loudness
5. Beliefs Re: Origin
6. Amount of negative content of voices
7. Degree of negative content
8. Amount of distress
9. Intensity of distress
10. Disruption to life caused by voices
11. Controllability of voices
12. Number of voices over the last week
**PSYRATS: Beliefs Scoring Criteria**

1. **Amount of Preoccupation with Beliefs**
   How much time do you spend thinking about your beliefs (all the time/ daily/ weekly)?

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>No beliefs or beliefs which the client thinks about less than one week</td>
<td>Client thinks about beliefs at least once a week</td>
<td>Client thinks about beliefs at least once a day</td>
<td>Client thinks about beliefs at least once an hour</td>
<td>Client thinks about unusual beliefs continuously or almost continually. Subject can only think about other things for a few seconds or minutes.</td>
</tr>
</tbody>
</table>

2. **Duration of preoccupation with beliefs.**
   When the belief comes into your mind how long do they persist (few seconds/ minutes/ hours)?

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>No beliefs</td>
<td>Thoughts about beliefs last for a few seconds, fleeting thoughts</td>
<td>Thoughts about beliefs last for several minutes</td>
<td>Thoughts about beliefs last for at least one hour</td>
<td>Thoughts about beliefs usually last for hours at a time</td>
</tr>
</tbody>
</table>

3. **Conviction (AT THE TIME OF THE INTERVIEW)**
   At the present time how convinced are you that your beliefs are true? Can you estimate this on a scale from 0-100, where 100 means you are totally convinced by your beliefs and 0 being that you are not convinced at all.

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>No conviction at all</td>
<td>Very little conviction in reality of beliefs less than 10%</td>
<td>Some doubts relating to conviction in beliefs 10-49%</td>
<td>Conviction in belief is very strong between 50-99%</td>
<td>Conviction is 100%</td>
</tr>
</tbody>
</table>
4. Amount of distress

Do your beliefs cause you distress?
How much of the time do they cause you distress?

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beliefs never cause distress</td>
<td>Beliefs cause distress on the minority of occasions</td>
<td>Beliefs cause distress on approx 50% of occasions</td>
<td>Beliefs cause distress on the majority of occasions when they occur between 50-99% of the time</td>
<td>Beliefs always cause distress when they occur</td>
</tr>
</tbody>
</table>

5. Intensity of Distress

When your beliefs distress you, how severe does this feel?

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>No distress</td>
<td>Beliefs cause slight distress</td>
<td>Beliefs cause moderate distress</td>
<td>Beliefs caused marked distress</td>
<td>Beliefs cause extreme distress, couldn't be worse</td>
</tr>
</tbody>
</table>

PSYRATS: Beliefs scoring Criteria

6. Disruption to life caused by beliefs

How much disruption do your beliefs cause you?
Do they prevent you from working or carrying out a daytime activity?
Do they interfere with your relationships with family or friends?
Do they interfere with your ability to look after yourself (washing/ changing clothes)?

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>No disruption to life, able to maintain independent living.</td>
<td>Beliefs cause minimal amount of disruption to life e.g. interferes with concentration.</td>
<td>Beliefs cause moderate amount of disruption to life. Some</td>
<td>Beliefs cause severe disruption to life so that hospitalization is usually</td>
<td>Beliefs cause complete disruption of daily life requiring hospitalization.</td>
</tr>
</tbody>
</table>
### PSYRATS: Voice Hearing Scoring Criteria

1. **Frequency**

How often do you experience voices (every day/ all day long)?

- **0** Voices not present or present less than once a week (specify frequency if present)
- **1** Voices occur at least once a week
- **2** Voices occur at least once a day
- **3** Voices occur at least once an hour
- **4** Voices occur continually i.e. only stop for a few seconds or minutes

2. **Duration**

When you hear voices, how long do they last e.g. few seconds, minutes, hours all day long?

- **0** Voices not present
- **1** Voices last for a few seconds, fleeting voices
- **2** Voices last for several minutes
- **3** Voices last for at least one hour
- **4** Voices last for hours at a time

---

**No problems in daily living skills.**

Able to maintain social and family relationships (if present)

Able to maintain daytime activity and or family/social activities.

Client is able to maintain some daily activities, self-care and relationships whilst in hospital.

Client may also be in supported accommodation, but experiencing severe disruption of life in terms of activities daily living skills and or relationships.

Self-care is severely disrupted.

---

Client is able to maintain daytime activity and or family/social activities.

Client is not in hospital although may live in supported accommodation or receive help with daily living skills.

Client is able to maintain some daily activities, self-care and relationships.

The client is unable to maintain and daily activities and social relationships.
3. Location

When you hear your voices where do they sound like they’re coming from? Is it inside of your head and/or outside? If voices sound like they are outside your head, whereabouts do they sound like they’re coming from?

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voices not present</td>
<td>Voices originate inside head only</td>
<td>Voices outside the head, but close to ears or head</td>
<td>Voices originate inside or close to ears and outside head away from ears</td>
<td>Voices originate from outside space, away from head only</td>
</tr>
</tbody>
</table>

PSYRATS: Voice Hearing Scoring Criteria

4. Loudness

How loud are your voices? Are they louder than your voice, about the same loudness, quieter or just a whisper?

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voices not present</td>
<td>Quieter than own voice, whispers</td>
<td>About the same loudness as own voice</td>
<td>Louder than own voice</td>
<td>Extremely loud, shouting</td>
</tr>
</tbody>
</table>

5. Beliefs Regarding the origin of voices

What do you think has caused your voices? Are the voices caused by factors related to yourself or solely due to other people or factors?

If the client expressed an external origin: How much do you believe that your voices are cause by (add clients attribution) on a scale from 0-100 with 100 being that you are totally convinced, have no doubts and 0 being that it is completely untrue.
PSYRATS: Voice Hearing Scoring Criteria

6. Amount of negative content of voices.

Do your voices say unpleasant or negative things?
Can you give me some examples of what the voices say?
How much of the time do the voices say these types of unpleasant or negative items?

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voices not present</td>
<td>Believes voices to be solely internally generated and related to self</td>
<td>Holds a less than 50% conviction that voices originate from external causes</td>
<td>Holds 50% or more conviction (but less than 100%) that voices originate from external cause</td>
<td>Believes voices are solely due to external causes, 100% conviction</td>
</tr>
</tbody>
</table>

7. Degree of negative content (Rate using criteria on scale, asking for more detail if necessary).

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>No unpleasant content</td>
<td>Occasional unpleasant content</td>
<td>Minority of voice is unpleasant or negative (less than 50%)</td>
<td>Majority of voice content is unpleasant or negative (more than 50%)</td>
<td>All of voice content is unpleasant or negative</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not unpleasant or negative</td>
<td>Some degree of negative content, but not personal comments relating to self or family e.g. swear words or comments not directed to self. E.g. “the milkman is ugly”</td>
<td>Personal verbal abuse, comments on behaviour E.g. “shouldn’t do that, or say that”</td>
<td>Personal verbal abuse relating to self concept E.g. “you’re lazy, ugly, mad, perverted”</td>
<td>Personal threats to self E.g. threats to harm self or family Extreme instructions or commands to harm self or others Personal verbal abuse as in 3</td>
</tr>
</tbody>
</table>
PSYRATS: Voice Hearing Scoring Criteria

8. Amount of distress

Are your voices distressing?
How much of the time?


<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voices not distressing at all</td>
<td>Voices occasionally distressing, majority not distressing</td>
<td>Equal amounts of distressing and non distressing voices</td>
<td>Majority of voices distressing, minority not distressing</td>
<td>Voices always distressing</td>
</tr>
</tbody>
</table>

9. Intensity of Distress

When voices are distressing, how distressing are they?
Do they cause you minimal, moderate, severe distress?
Are they the most distressing they have ever?


<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voices not distressing at all</td>
<td>Voices slightly distressing</td>
<td>Voices are distressing to moderate degree</td>
<td>Voices are very distressing, Although the client could feel worse</td>
<td>Voices are extremely distressing. Client feels the worse he/s he could possibly feel</td>
</tr>
</tbody>
</table>

PSYRATS: Voice Hearing Scoring Criteria

10. Disruption to life caused by the voices

How much disruption do the voices cause to your life?
Do they prevent you from working or carrying out a daytime activity?
Do they interfere with your relationships with family or friends?
Do they interfere with your ability to look after yourself (washing/ changing clothes)?
### PSYRATS: Voice Hearing Scoring Criteria

11. Controllability of voices

**Do you think you have any control over when your voices happen?**
**Can you dismiss or bring on your voices?**

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>No disruption to life, able to maintain independent living. No problems in daily living skills. Able to maintain social and family relationships (if present)</td>
<td>Voices cause minimal amount of disruption to life e.g. interferes with concentration. Able to maintain daytime activity and social and family relationships.</td>
<td>Voices cause moderate amount of disruption to life. Some disturbance to daytime activity and or family/social activities.</td>
<td>Voices cause severe disruption to life so that hospitalization is usually necessary. Client is not in hospital although may live in supported accommodation or receive help with daily living skills.</td>
<td>Voices cause complete disruption of daily life requiring hospitalization. The client is unable to maintain and daily activities and social relationships. Self-care is severely disrupted.</td>
</tr>
</tbody>
</table>

---

0 Client believes they can have control over their voices and can bring on or dismiss them at will

1 Client believes they can have some control over their voices on the majority of occasions

2 Client believes they can have some control over their voices approximately half of the time

3 Client believes they can have some control over their voices but only occasionally. The majority of the time the client experiences voices, which are uncontrollable.

4 Client has no control over when the voices occur and cannot dismiss or bring them on at all
### Number of Voices

How many Different Voices have you heard over the last week?

---

### Form of Voices

(Please circle the appropriate answer and indicate the number of voices)

<table>
<thead>
<tr>
<th>Form of Voices</th>
<th>YES</th>
<th>NO</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; Person</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; Person</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3&lt;sup&gt;rd&lt;/sup&gt; Person</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single words or phrases without pronouns</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Appendix Six: The Anxious Thoughts Inventory (Meta-worry subscale)

Anxious Thoughts Inventory (AnTI) Wells (1997)

<table>
<thead>
<tr>
<th>ID __________________________________________</th>
<th>Date ____________________________________</th>
<th></th>
<th>Sometimes</th>
<th>Often</th>
<th>Almost always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. When looking to my future I give more thought to the negative things than the positive things that might happen to me.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. I have difficulty in clearing my mind of repetitive thoughts.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. I worry that I cannot control my thoughts as well as I would like to.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. I take disappointments so keenly that I can’t put them out of my mind,</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. Unpleasant thoughts enter my head against my will.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. I think I am missing out on things in life because I worry too much.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. I have repetitive thoughts such as counting or repeating phrases.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Appendix Seven: The Calgary Depression Scale for Schizophrenia

Interviewer: Ask the first question as written. Use follow up probes or qualifiers at your discretion.
N.B. The last item (9) is based on observations of the entire interview.

1. DEPRESSION: How would you describe your mood over the last two weeks? Do you keep reasonably cheerful or have you been very depressed or low spirited recently? In the last two weeks how often have you (own words) every day? All day?
0. Absent
1. Mild: Expresses some sadness or discouragement on questioning.
2. Moderate: Distinct depressed mood persisting up to half the time over last 2 weeks: present daily.
3. Severe: Markedly depressed mood persisting daily over half the time interfering with normal motor and social functioning.

2. HOPELESSNESS: How do you see the future for yourself? Can you see any future? - or has life seemed quite hopeless? Have you given up or does there still seem some reason for trying?
0. Absent
1. Mild: Has at times felt hopeless over the last two weeks but still has some degree of hope for the future.
2. Moderate: Persistent, moderate sense of hopelessness over last week. Can be persuaded to acknowledge possibility of things being better.

3. SELF DEPRECIATION: What is your opinion of your self compared to other people? Do you feel better, not as good, or about the same as other? Do you feel inferior or even worthless?
0. Absent
1. Mild: Some inferiority; not amounting to feeling of worthlessness.
2. Moderate: Subject feels worthless, but less than 50% of the time.
3. Severe: Subject feels worthless more than 50% of the time. May be challenged to acknowledge otherwise.

4. GUILTY IDEAS OF REFERENCE: Do you have the feeling that you are being blamed for something or even wrongly accused? What about? (Do not include justifiable blame or accusation. Exclude delusions of guilt.)
0. Absent
1. Mild: Subject feels blamed but not accused less than 50% of the time.
2. Moderate: Persisting sense of being blamed, and/or occasional sense of being accused.
3. Severe: Persisting and distressing sense of being accused. When challenged, acknowledges that it is not so.

5. PATHOLOGICAL GUILT: Do you tend to blame yourself for little things you may have done in the past? Do you think that you deserve to be so concerned about this?
0. Absent
1. Mild: Subject sometimes feels over guilty about some minor peccadillo, but less than 50% of time.
2. Moderate: Subject usually (over 50% of time) feels guilty about past actions the significance of which he exaggerates.
3. Severe: Subject usually feels s/he is to blame for everything that has gone wrong, even when not his/her fault.

6. MORNING DEPRESSION: When you have felt depressed over the last 2 weeks have you noticed the depression being worse at any particular time of day?
0. Absent: No depression.
1. Mild Depression: present but no diurnal variation.
2. Moderate Depression: spontaneously mentioned to be worse in a.m.
3. Severe Depression: markedly worse in a.m., with impaired functioning which improves in p.m.

7. EARLY WAKENING: Do you wake earlier in the morning than is normal for you? How many times a week does this happen?
0. Absent: No early wakening.
1. Mild: Occasionally wakes (up to twice weekly) 1 hour or more before normal time to wake or alarm time.
2. Moderate: Often wakes early (up to 5 times weekly) 1 hour or more before normal time to wake or alarm.
3. Severe: Daily wakes 1 hour or more before normal time.

8. SUICIDE: Have you felt that life wasn’t worth living? Did you ever feel like ending it all? What did you think you might do? Did you actually try?
0. Absent
1. Mild: Frequent thoughts of being better off dead, or occasional thoughts of suicide.
2. Moderate: Deliberately considered suicide with a plan, but made no attempt.
3. Severe: Suicidal attempt apparently designed to end in death (i.e.: accidental discovery of inefficient means).

9. OBSERVED DEPRESSION: Based on interviewer’s observations during the entire interview. The question “Do you feel like crying?” used at appropriate points in the interview, may elicit information useful to this observation.
0. Absent
1. Mild: Subject appears sad and mournful even during parts of the interview, involving affectively neutral discussion.
2. Moderate: Subject appears sad and mournful throughout the interview, with gloomy monotonous voice and is tearful or close to tears at times.
3. Severe: Subject chokes on distressing topics, frequently sighs deeply and cries openly, or is persistently in a state of frozen misery if examiner is sure that this is present.
Appendix Eight: The Brief Core Schema Scale

This questionnaire lists beliefs that people can hold about themselves and other people. Please indicate whether you hold each belief (NO or YES). If you hold the belief then please indicate how strongly you hold it by circling a number (1 – 4). Try to judge the beliefs on how you have generally, over time, viewed yourself and others. Do not spend too long on each belief. There are no right or wrong answers and the first response to each belief is often the most accurate.

<table>
<thead>
<tr>
<th>MYSELF</th>
<th>Believe it slightly</th>
<th>Believe it moderately</th>
<th>Believe it very much</th>
<th>Believe it totally</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am unloved</td>
<td>NO YES → 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am worthless</td>
<td>NO YES → 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am weak</td>
<td>NO YES → 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am vulnerable</td>
<td>NO YES → 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am bad</td>
<td>NO YES → 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am a failure</td>
<td>NO YES → 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am respected</td>
<td>NO YES → 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am valuable</td>
<td>NO YES → 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am talented</td>
<td>NO YES → 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am successful</td>
<td>NO YES → 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am good</td>
<td>NO YES → 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am interesting</td>
<td>NO YES → 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OTHER PEOPLE</th>
<th>Believe it slightly</th>
<th>Believe it moderately</th>
<th>Believe it very much</th>
<th>Believe it totally</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other people are hostile</td>
<td>NO YES → 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other people are harsh</td>
<td>NO YES → 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other people are unforgiving</td>
<td>NO YES → 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other people are bad</td>
<td>NO YES → 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other people are devious</td>
<td>NO YES → 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other people are nasty</td>
<td>NO YES → 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other people are fair</td>
<td>NO YES → 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other people are good</td>
<td>NO YES → 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other people are trustworthy</td>
<td>NO YES → 1 2 3 4</td>
<td></td>
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<tr>
<td>Other people are accepting</td>
<td>NO YES → 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other people are supportive</td>
<td>NO YES → 1 2 3 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other people are truthful</td>
<td>NO YES → 1 2 3 4</td>
<td></td>
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</table>
Appendix Nine: The Measure of Common Responses to Unusual Experiences

Measure of common responses to unusual experiences

People do a variety of things in response to unusual experiences such as hearing voices or worrying that they are going to be harmed. Although people are not always distressed by these experiences, we are interested in the ways that you typically respond to your experiences when you are distressed. Below is a list of responses that people sometimes use to cope or to prevent something bad from happening. Please rate how frequently you have typically used each of these responses over the past two weeks using the scale below. Your answers are confidential.

<table>
<thead>
<tr>
<th>Response</th>
<th>1 Never</th>
<th>2 Sometimes</th>
<th>3 Often</th>
<th>4 Almost always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I avoid doing certain things or going to certain places</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I drink alcohol or use drugs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I try not to think about my unusual experiences</td>
<td></td>
<td></td>
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<tr>
<td>4. I try to think positive thoughts or tell myself it will be OK</td>
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<td></td>
<td></td>
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<tr>
<td>5. I think about what I have done to deserve my unusual experiences</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I look out for danger when I’m out</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>7. I ask for help from friends or professionals</td>
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<td></td>
<td></td>
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<tr>
<td>8. I try to be with someone as much as possible</td>
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<tr>
<td>9. I get angry or aggressive towards myself or others</td>
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<td></td>
</tr>
<tr>
<td>10.</td>
<td>I pray or go to a place of worship</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>When I am upset or worried by my unusual experiences I try to calm myself</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>I focus on myself and my behaviour</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>I test out my fears about my unusual experiences by changing the way I respond</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>I talk to someone about my problems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>I try to make sure I am prepared in case something happens</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>I isolate myself from other people</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>17.</td>
<td>I think of ways to solve my problems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>I try to tell as many people as possible about what is happening</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>I try to ignore my unusual experiences</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>I have to leave a situation in a hurry or run away</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.</td>
<td>I do what I am told to do to avoid threat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>I do things to distract myself such as trying to keep busy or listening to music</td>
<td></td>
<td></td>
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<tr>
<td>23.</td>
<td>I go over and over my experiences in my mind and try to make sense of what is happening</td>
<td></td>
<td></td>
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<tr>
<td>24.</td>
<td>I do not tell anyone about my experiences</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>25.</td>
<td>I try to think about my experiences in a different way or</td>
<td></td>
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</tbody>
</table>
It would also be useful to know a bit more about the distressing experiences you were thinking of as you completed this questionnaire, for example hearing a threatening voice or feeling that someone is out to get you. Please use the box below if you would like to provide more detail about your experiences or any other responses that you use that this questionnaire has not asked you about.

Thank you for completing this questionnaire
FOCUS Trial

(Focusing on Clozapine Unresponsive Symptoms)

INFORMATION FOR PARTICIPANTS

You are being invited to take part in a research study. It is important for you to understand why the research is being done and what it will involve. Please take time to read the information below carefully, and discuss it with others if you wish. The Research Assistant who gave you this sheet will be happy to answer any questions that you might have about the information set out below. Feel free to ask if there is anything that is not clear, or if you would like more information. You may wish to read the information sheet more than once, and you should take time to decide whether or not you wish to take part.

1. **What is the purpose of the study?**

The standard medication for psychosis called ‘antipsychotics’ is often helpful for people who experience things like hearing voices or having very strong beliefs that others do not seem to share or agree with. These experiences are sometimes referred to using the term ‘psychosis’. However, some people do not show much improvement with antipsychotic medication and may therefore be prescribed one particular type of antipsychotic medication called clozapine, which can be beneficial. For some people who cannot tolerate clozapine because of side effects or for those who continue to experience some difficulties in regards to psychosis, there is some evidence to suggest that a talking treatment called Cognitive Behavioural Therapy (CBT) can produce improvements. However, further research is needed to identify if CBT is helpful for people who either cannot take clozapine or who continue to experience difficulties when taking this medication. This study will help to address this question.

2. **Why have I been given this information?**
We are looking for people who have experience of psychosis or a schizophrenia type diagnosis and have either (1) been prescribed clozapine and, despite taking clozapine for at least 12 weeks, still experience mental health problems that negatively affect their way of life or (2) who have been prescribed clozapine but have stopped taking it over the past 2 years due to unpleasant side effects or because it no longer helps their mental health problems as well as it used to.

Volunteers should be experiencing psychosis (such as hearing distressing voices or holding unusual beliefs) and be experiencing persistent difficulties. If you fit these criteria, we would like to invite you to enter our study. If you would like to bring a friend, a care co-ordinator or a community psychiatric nurse (CPN) with you when you meet with us to discuss the research you are very welcome to do so.

3. **Do I have to take part?**

No. As entry to the study is entirely voluntary, it is up to you to decide whether or not to take part. You should not feel under any pressure to make the decision. If you do decide to take part, you will be asked to sign a consent form. Even after signing you are still free to withdraw at any time and without giving a reason. This will not affect any care you may receive now or in the future.

4. **What will happen to me if I take part?**

You will be invited to meet one of our researchers at a convenient location for you to discuss the study in more detail. Here we will explain the exact nature of the research, explaining our reasons for conducting this study and answer any questions you may have. If you decide that you wish to participate in this study you will be asked to sign a consent form. Following this, you will be met again by the researcher and talk to them for about 1 to 1½ hours about your current experiences in order to check that you are suitable for this study. If you are suitable you will also be asked to fill in 13 questionnaires this would take approximately 1 hour (this can be split over 2 or more sessions if you wish).

Following this, we will arrange to see you two more times for a follow up appointment. These appointments will be planned 9 months following your initial appointment and then again at 21 months after your initial appointment. These sessions will also take up to 2½ hours. We would also like to contact you via telephone at four time points over the period you are involved in the trial to ask if you would complete a very short questionnaire over the telephone, this would take no more than ten minutes to complete. These telephone appointments would be scheduled at 3 months, 6 months, 13 months and 17 months. You may also be asked to take part in a
psychological talking treatment (called ‘cognitive behavioural therapy’), please see section 5 for more information.

After your final (21 month) assessment, you will be asked if you would like to take part in an additional study. This study involves listening to a five minute recording twice while following some instructions about how to respond to the recording and filling in some questionnaire measures. You will also be asked to wear a small device on your finger to measure any physiological response to the task. This should take no more than 30 minutes to complete and you will receive a £10 payment for your time.

5. Will this study involve treatment?

Sometimes, because we do not know which way of treating individuals is best, we need to make comparisons. Therefore, people who take part in this trial will either be allocated to receive cognitive behavioural therapy (CBT) plus their treatment as usual OR treatment as usual alone. The allocation to either CBT plus treatment as usual or treatment as usual alone is selected randomly – i.e. selected by chance. We will compare those who receive CBT from the trial in addition to their usual treatment with those who receive their usual treatment only (treatment as usual). This means that half of the people who agree to take part will be offered psychological treatment (cognitive therapy) in addition to their usual treatment. This will give those people a chance to focus on whatever is of most concern to them at the time. This treatment will consist of up to 30 sessions of cognitive therapy (usually about one hour each on a weekly basis) over a 9 month period. The sessions will take place at a convenient location for you such as your home or GP surgery. These appointments will all be within working hours, which is usually between the hours of 9am to 5pm. If you receive CBT, you may be asked at the end of therapy if you would like to talk to one of our researchers about your experiences of CBT. This is so we can learn from you about what it is like to have CBT. The interview will be quite informal, though the interviewer will have certain questions to ask about your experience of CBT, and also to allow you to highlight what’s most important for you about the process. The interview can take at a time convenient for you, within general working hours, and can take place either at your home or another location convenient for you. We expect interviews to last for up to an hour, and they will be recorded so that your answers can be accurately typed up. Only specific members of the research team will have access to the recording. Once the interviews are typed up they will be anonymised, meaning no information will be included in the typed version that could identify you personally as the interviewee. If you are eligible for this part of the study you will be contacted by one of the research team and asked if you would like to hear more. If you take part in this additional interview you will receive a payment of £10 as a token of appreciation.

Some sessions will be recorded so the quality and content of the therapy you receive can be assessed, to ensure all participants have a similar
experience. These audiotapes/CDs will be available for you to listen to if you wish (some people find this useful), and afterwards, any such tapes/CDs will be kept confidentially in a locked cabinet and destroyed at the end of the study in December 2016.

If you are receiving the CBT treatment we hope that the treatment and the follow up appointments will help you. However, this cannot be guaranteed. Regardless of whether or not you are allocated to receive CBT, all participants are equally valuable as the information we get from BOTH groups in this study may help us in the future to treat people who experience psychosis more effectively.

If you consent to the study we will access your medical records and we will enter details of the therapy that you may receive onto your medical records. Personally identifying information will be stored in paper and electronic format and will be stored separately from research data (the questionnaires or interviews you complete). All personally identifiable information will be kept confidentially and securely; information that is in paper format will be kept in a locked filing cabinet in a locked office on NHS or University premises. Personally identifiable information that is stored electronically will be in a database called OpenCDMS and is only accessible to specific members of staff who have been granted the necessary privileges. All transmission and storage of participant identifying data complies with current relevant NHS security standards.

6. **What are the advantages and disadvantages to taking part?**

If you take part in the study, it is hoped that both the treatment and monitoring will be helpful to you. It is possible that they will improve any mental health difficulties that you are experiencing. However, it is also possible that talking about some of these issues may be upsetting. You will have the opportunity to discuss any concerns you have with the researcher and you are free to withdraw from the study at any point. You can also talk to your CPN, GP or psychiatrist about participation in this study and any concerns you may have.

7. **Will taking part in the study cost me anything?**

No. The study will only involve your time. In order to compensate you for this and any expenses incurred, you will received a payment of £10 at the initial appointment and at each of the monitoring appointments, £30 in total. In addition, we will also send you four non cash vouchers over the time you are involved in the trial; two will be sent to you between the baseline assessment and 9 month monitoring appointment and two will be sent to you between the 9 month monitoring and 21 month monitoring appointment. We will discuss with you options for where the vouchers can be redeemed.
Whilst we offer home visits for both the monitoring appointments and therapy, if you would prefer to have appointments somewhere else we can arrange this for you and if this requires you to travel for the appointment, we can compensate any travel expenses incurred.

8. **Who will know I am participating in the study?**

Other people involved in your care such as your Consultant Psychiatrist, Care Coordinator and GP will be informed.

9. **Who will have access to information collected about me during this study?**

Your information (written and audio-taped) from the study will be as confidential as your medical records. The information that you provide (research data such as questionnaires, interviews and audio recordings) will not be shared with other people i.e. medical staff or people involved in your care unless you say it is OK to do so. The only instance in which information you provide may be shared is if you provide us with information which indicates that either yourself or another person is at risk of danger, in which case we would need to share this information with another person involved in your care such as your care coordinator, psychiatrist or your GP. However, we would ALWAYS discuss this with you beforehand.

10. **What will happen to the results of the research?**

After the study is completed, we will analyse the results and submit them for publication in a scientific journal. Presentations may also be given at scientific conferences. Results will be used to improve services. You will not be identified in any publication or presentation. If you wish to know the outcome of our research please let us know.

11. **Who is organising the research?**

The chief investigator is Professor Tony Morrison from the School of Psychological Sciences Department at the University of Manchester. This study has been approved by the Lancaster NRES Committee Northwest.

12. **What do I do if I wish to make a complaint?**

If you have a concern about any aspect of this trial, you should ask to speak to the researchers who will do their best to answer your questions. If they are unable to resolve your concern or you wish to make a complaint regarding
the trial, you can contact the Patient Advisory Liaison Service or the complaints manager on 0800 587 4793 / 0161 772 3642.

Please keep this information sheet for future reference.

Thank you for considering this proposal.

If you want to discuss this study any further, please contact either:

Professor Tony Morrison (Chief Investigator):
0161 772 4642

Dr Melissa Pyle (Trial Manager):
07767760767
melissa.pyle@gmw.nhs.uk

Liz Murphy (Trial Therapist):
07826908044
elizabeth.murphy@gmw.nhs.uk

Sarah Tully (Assistant Psychologist – Research)
07584273963
sarah.tully@gmw.nhs.uk
CONSENT FORM

Client Identification Number for this study:

Title of Project: **Focusing on Clozapine Unresponsive Symptoms (FOCUS) Trial: a randomised controlled trial**

Chief Investigator: **Professor Tony Morrison**

Name of Researcher:

1. I confirm that I understand the nature of the study proposed, having read and understood the information sheet provided. I have had opportunity to ask questions, and am satisfied with the answers I received.

2. I understand that my participation is voluntary, and that I am free to withdraw from the study at any time. Should I wish to withdraw, I understand that I can do so without giving reason, and without my medical care or legal rights being affected.

3. I agree to take part in the study.

4. I agree that you may inform my general practitioner and care coordinator of my involvement in the study.

5. I understand that my medical notes and data collected during the study may be looked at by individuals from the research team, regulatory authorities or from the Trust where it is relevant to my taking part in this research. I give permission for these individuals to have access to this information.

6. I agree that you may audio tape sessions as required and understand that I may have a copy of any tapes made.
<table>
<thead>
<tr>
<th>Subject Name</th>
<th>Date</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>…………………..</td>
<td>… / … / …..</td>
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<tr>
<td>Researcher</td>
<td>Date</td>
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1 copy for participant; 1 copy for researcher; 1 copy for GP notes
Appendix Twelve: The Beliefs about Voices Questionnaire

**BAVQ - R**

CHADWICK, PAUL, LEES, SUSAN, BIRCHWOOD, MAX

*The revised Beliefs about Voices Questionnaire (BAVQ-R)*

(From The British Journal of Psychiatry 2000 177: 229-232)

There are many people who hear voices. It would help us to find out how you are feeling about your voices by completing this questionnaire. Please read each statement and tick the box which best describes the way you have been feeling in the *past week*.

If you hear more than one voice, please complete the form for the voice which is dominant.

Thank you for your help.

Name: ..........................................................  
Age: ..........................................................

<table>
<thead>
<tr>
<th></th>
<th>Disagree</th>
<th>Unsure</th>
<th>Slightly Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>My voice is punishing me for something I have done</td>
<td></td>
<td></td>
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<tr>
<td>2</td>
<td>My voice wants to help me</td>
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<td>3</td>
<td>My voice is very powerful</td>
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<td>4</td>
<td>My voice is persecuting me for no good reason</td>
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<td>5</td>
<td>My voice wants to protect me</td>
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<td>6</td>
<td>My voice seems to know everything about me</td>
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<tr>
<td>7</td>
<td>My voice is evil</td>
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<tr>
<td>8</td>
<td>My voice is helping to keep me sane</td>
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<td>9</td>
<td>My voice makes me do things I really don't want to do</td>
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<td>10</td>
<td>My voice wants to harm me</td>
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<td>11</td>
<td>My voice is helping me to develop my special powers or abilities</td>
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<tr>
<td>12</td>
<td>I cannot control my voices</td>
<td></td>
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<tr>
<td>13</td>
<td>My voice wants me to do bad things</td>
<td></td>
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<td>14</td>
<td>My voice is helping me to achieve my goal in life</td>
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<td></td>
<td>My voice will harm or kill me if I disobey or resist it</td>
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<td>---</td>
<td>-------------------------------------------------------</td>
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<tr>
<td>15</td>
<td>My voice is trying to corrupt or destroy me</td>
<td></td>
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<tr>
<td>16</td>
<td>I am grateful for my voice</td>
<td></td>
<td></td>
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<tr>
<td>17</td>
<td>My voice rules my life</td>
<td></td>
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<td>18</td>
<td>My voice reassures me</td>
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<td>19</td>
<td>My voice frightens me</td>
<td></td>
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<td>20</td>
<td>My voice makes me happy</td>
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<td>21</td>
<td>My voice makes me feel down</td>
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<td>22</td>
<td>My voice makes me feel angry</td>
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<td>23</td>
<td>My voice makes me feel calm</td>
<td></td>
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<tr>
<td>24</td>
<td>My voice makes me feel anxious</td>
<td></td>
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<tr>
<td>25</td>
<td>My voice makes me feel confident</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>26</td>
<td>When I hear my voice, usually...</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Disagree</th>
<th>Unsure</th>
<th>Slightly Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>I tell it to leave me alone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>I try and take my mind off it</td>
<td></td>
<td></td>
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<tr>
<td>29</td>
<td>I try and stop it</td>
<td></td>
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<tr>
<td>30</td>
<td>I do things to prevent it talking</td>
<td></td>
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<tr>
<td>31</td>
<td>I am reluctant to obey it</td>
<td></td>
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<tr>
<td>32</td>
<td>I listen to it because I want to</td>
<td></td>
<td></td>
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<tr>
<td>33</td>
<td>I willingly follow what my voice tells me to do</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>I have done things to start to get in contact with my voice</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>35</td>
<td>I seek the advice of my voice</td>
<td></td>
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</tr>
</tbody>
</table>
Appendix Thirteen: The Thought Control Questionnaire

Appendix V

THOUGHT CONTROL QUESTIONNAIRE

Developed by Adrian Wells and Mark Davies

Age:  Sex: M/F

Most people experience unpleasant and/or unwanted thoughts (in verbal and/or picture form) which can be difficult to control. We are interested in the techniques that you generally use to control such thoughts.

Below are a number of things that people do to control these thoughts. Please read each statement carefully, and indicate how often you use each technique by circling the appropriate number. There are no right or wrong answers. Do not spend too much time thinking about each one.

When I experience an unpleasant/unwanted thought:

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Almost always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I call to mind positive images instead</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. I tell myself not to be so stupid</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. I focus on the thought</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. I replace the thought with a more trivial bad thought</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. I don’t talk about the thought to anyone</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. I punish myself for thinking the thought</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. I dwell on other worries</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. I keep the thought to myself</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. I occupy myself with work instead</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>10. I challenge the thought’s validity</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11. I get angry at myself for having the thought</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12. I avoid discussing the thought</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13. I shout at myself for having the thought</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14. I analyse the thought rationally</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
### APPENDICES

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always always</th>
</tr>
</thead>
<tbody>
<tr>
<td>15. I slap or pinch myself to stop the thought</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16. I think pleasant thoughts instead</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>17. I find out how my friends deal with these thoughts</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>18. I worry about more minor things instead</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>19. I do something that I enjoy</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>20. I try to reinterpret the thought</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>21. I think about something else</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>22. I think more about the more minor problems I have</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>23. I try a different way of thinking about it</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>24. I think about past worries instead</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>25. I ask my friends if they have similar thoughts</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>26. I focus on different negative thoughts</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>27. I question the reasons for having the thought</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>28. I tell myself that something bad will happen if I think the thought</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>29. I talk to a friend about the thought</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>30. I keep myself busy</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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</tbody>
</table>

*Please check that you have responded to all of the items. Thank you.*

### SCORING KEY

<table>
<thead>
<tr>
<th>D</th>
<th>P</th>
<th>R</th>
<th>W</th>
<th>S</th>
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</thead>
<tbody>
<tr>
<td><em>Reverse scored.</em></td>
<td>1.</td>
<td>2.</td>
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<td>4.</td>
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<td>9.</td>
<td>6.</td>
<td>10.</td>
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<td>8.</td>
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<td>19.</td>
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<td>22.</td>
<td>17.</td>
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<td>21.</td>
<td>15.</td>
<td>23.</td>
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<td>25.</td>
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<td>30.</td>
<td>28.</td>
<td>27.</td>
<td>26.</td>
<td>29.</td>
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</tbody>
</table>

**TOTAL** | | | | |
Appendix Fourteen: The Metacognitions Questionnaire

META-COGNITIONS QUESTIONNAIRE - A

MCQ-A

*Cartwright-Hatton et al 2003.*

We are interested in how young people think. Listed below are a number of beliefs that people have. Please read each item and say how much you *generally* agree with it by circling a number. Please respond to all the items. There are no right or wrong answers.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Do not agree</th>
<th>Agree slightly</th>
<th>Agree moderately</th>
<th>Agree very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Worrying helps me to avoid problems in the future</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2.</td>
<td>My worrying is bad for me</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3.</td>
<td>I think a lot about my thoughts</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>4.</td>
<td>I could make myself sick with worrying</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>5.</td>
<td>I am aware of the way my mind works when I am thinking through a problem</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6.</td>
<td>If I did not control a worrying thought, and then it happened, it would be my fault</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7.</td>
<td>I need to worry in order to be organised</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>8.</td>
<td>I have little confidence in my memory for words and names</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9.</td>
<td>My worrying thoughts persist, no matter how I try to stop them</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
10. Worrying helps me to get things sorted out in my mind
11. I cannot ignore my worrying thoughts
12. I monitor my thoughts
13. I should be in control of my thoughts all of the time
14. My memory can mislead me at times
15. My worrying could make me go mad
16. I am constantly aware of my thinking
17. I have a poor memory
18. I pay close attention to the way my mind works
19. Worrying helps me cope
20. Not being able to control my thoughts is a sign of weakness
21. When I start worrying, I cannot stop
22. I will be punished for not controlling certain thoughts
23. Worrying helps me to solve problems
24. I have little confidence in my memory for places
25. It is bad to think certain thoughts
26. I do not trust my memory
27. If I could not control my thoughts, I would not be able to function
28. I need to worry, in order to work well

29. I have little faith in my memory for actions

30. I constantly study my thoughts

Please ensure that you have responded to all items - Thank You.
Appendix Fifteen: Study Four Anxiety Rating VAS

- Please rate how anxious you currently feel
- 0 means that you are not at all anxious
- 100 means that you are extremely anxious, the most anxious you could feel

Your anxiety rating = [Blank Box]
Appendix Sixteen: Study Four Distress Rating VAS

- Please rate how distressed you currently feel
- 0 means that you are not at all distressed
- 100 means that you are extremely distressed, the most distressed you could feel

Your distress rating =

The most distressed you could possibly feel

100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0

Not at all distressed
Appendix Seventeen: Study Four Manipulation Check VAS

- Please rate how much you felt you were focusing on any words you might have heard during the task and listening out for them.
- 0 means that you were not focusing on the words at all and you were stopping yourself listening out for them as much as possible.
- 100 means that you were completely focusing on the words and listening out for them as much as possible.

Your rating: 

If you heard any words during the task, please also estimate how many words you think you heard:

I completely focused on the out words and listened for them

I was not focusing on the words at all and stopped myself listening out for them
Sometimes people hear words during the recording you are going to listen to. While you are listening to the recording if you do hear any words please use the space below to keep a tally of how many you hear. If you are able to, please also make a note of as many of these words as possible:

Tally of words e.g. - Ịụụ

Make a note of any words you can below: