A comparison of metacognitive belief, thought control strategies and hallucination in a spiritual and non-spiritual population

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1. ABSTRACT

This study tested hypotheses about the role of explanation in Morrison's (2001) model of hallucination using non-clinical spiritual and non-spiritual groups. Metacognitive beliefs about uncontrollability and self-consciousness were hypothesised to be positively correlated with predisposition to hallucination for all groups. However the spiritual group was also expected to report more of these beliefs corresponding to a greater predisposition to hallucination. In addition only the non-spiritual group was expected to show significant positive correlations between punishment, worry and reappraisal thought control strategies and hallucination. No differences were anticipated across the groups on the overall scores on these strategies.

A within and between design was used to test hypotheses, using a non-random volunteer sample, recruited from spiritual churches, mediums and adult education colleges. A total of 78 questionnaires were returned from the 150 distributed. Questionnaires measured predisposition to hallucination, thought control strategies, metacognitive beliefs, anxiety and autobiographical information including spiritual beliefs.

There was mixed support for the hypotheses, as the groups differed significantly on associations between uncontrollability and predisposition to hallucination. However the spiritual and non-spiritual groups showed similar associations on the self-consciousness scale. In addition both spiritual groups reported stronger beliefs about self-consciousness corresponding to greater predisposition to hallucination. Consistent with the second hypothesis only the non-spiritual group showed the predicted associations between the thought control strategies and hallucination. However the spiritual group reported greater use of reappraisal and distraction strategies. Post-hoc analyses revealed differences between groups on ratings for specific items comprising these strategies.

Spiritual beliefs were therefore implicated as having a role in the relationship between metacognitive beliefs, thought control strategies and predisposition to hallucination. The theoretical and clinical implications of these findings were discussed with the strengths and weaknesses of the study and recommendations made for future studies.
2. LITERATURE REVIEW

2.1 Overview

The metacognitive model of hallucination (Morrison, 2001) is described in depth and the supporting literature evaluated. The utility of the model in providing an explanation for the development and maintenance of hallucinations was examined.

The evidence for the occurrence of hallucinations in non-clinical populations (in the absence of psychological morbidity) is reviewed with studies drawn from epidemiological surveys, comparative studies and schizotypy. The implications of these studies for the metacognitive model of hallucination are discussed along with the methodological difficulties and the need for further research.

An argument is constructed for the value of the metacognitive model in explaining both clinical and non-clinical accounts of hallucination. The limitations of the existing experimental literature for the model are identified and a case made for addressing these using non-clinical populations. Finally the hypotheses developed from this discussion are presented.
2.2 Introduction

2.2.1 Definition of hallucinations

Hallucinations have been defined as “an apparent perception of an external object where no such object is present” (Critchley & Rossal, 1978, p.64). Slade and Bentall (1988) proposed that an experience must fulfil the following three criteria to be considered a hallucination. These are that the experience must be a “percept-like event” occurring in the absence of external stimuli, that it should have the full impact of a real perception, and should occur without control by the individual (Slade & Bentall, 1988).

2.2.2 Clinical relevance of research in hallucinations

2.2.2.1 Clinical prevalence

Hallucinations are a source of major difficulty and distress for a significant proportion of those seeking help from mental health services (Barnes, Curson, Liddle & Patel, 1989). Clinically they have been associated with increased anxiety and depression (Tarrier, 1987) and risk of suicide (Falloon & Talbot, 1981). Estimates indicate that up to 70 per cent of those diagnosed with schizophrenia experience hallucinations (Sartorius, Shapiro & Jablensky, 1974). Hallucinations are also known to occur in other psychiatric conditions such as major depression and bereavement. They have also been observed as a consequence of drug and alcohol usage as well as organic conditions such as Parkinson’s disease; Alzheimer’s type dementia and brain injury (Asaad & Shapiro, 1986). The most commonly reported hallucinations are auditory, where the individual perceives that another person is talking to them or about them.
2.2.2.2 Treatment development

The clinical prevalence of hallucinations and associated distress indicates a need to develop effective treatments. Historically these have been pharmacological, as part of a general treatment for schizophrenia whilst the few psychological approaches focused on behavioural procedures (see Slade & Haddock, 1996, for a review). However, concerns about the neuroleptic medications used to treat psychoses have led to greater investment in the search for alternative treatments. A full discussion of these issues is beyond the scope of this review (see Day & Bentall, 1996; Breggin, 1991). However Day and Bentall (1996) summarised that a large number of patients did not respond to drug treatments at all or with limited success. In addition, the side effects of neuroleptic medication, which include neurological changes, effects on hormonal, hepatic and haematological functions, could also be distressing and dangerous. These have profound effects on the patients’ general psychological well being and on their willingness to take part in treatment regimes. Such consequences have led some to suggest that treatment by neuroleptic medication could be more harmful than the illness (Breggin, 1991). Day and Bentall (1996) adopted a less extreme position by suggesting that the pharmacological approach be combined with psychosocial treatments according to the needs of the individual. There are therefore grounds for developing psychological treatments for hallucinations. This need has been met by the growth in specific psychological techniques to manage hallucinatory experiences (see Slade & Haddock, 1996 for details of treatments). There has also been increasing evidence of the effectiveness of multifaceted cognitive behavioural approaches (Haddock, Tarrier, Spaulding, Yusupoff & colleagues, 1998). There is however a continuing need to understand which treatments are effective.
2.2.2.3 Theoretical importance

The development of psychological treatments for hallucinations has been strongly influenced by models attempting to explain the phenomenon. Although a wide range of explanations exist many of these require experimental testing. Consequently no single model has yet satisfactorily accounted for the development and maintenance of hallucinations (Bentall, 1990a). However the importance of these theories has been in providing alternative conceptualisations of hallucinations, which have enabled innovative treatments. These conceptualisations have had significant influence on clinical practice. Bentall (1990a) argued that the over-reliance on neuroleptic treatments was rooted in the prevailing view of schizophrenia as a disease. An argument can be made that it is only because of critics such as Boyle (1990) and Bentall (1990a) that psychological approaches have been revived.

Similarly as theory and intervention have evolved there has been growing evidence that hallucinations are much more common in the general population than previously thought (Barret & Etheridge, 1992; Honig et al, 1998; Romme & Escher, 1989; Tien, 1991). These studies have also shown that for some individuals, hallucinations may be neither catastrophic nor distressing.

A satisfactory model of hallucinations needs to accommodate these findings by explaining clinical and non-clinical experiences. Studies of non-clinical hallucinations may also be usefully examined from the perspective of clinical theory and practice, since they could facilitate the development of existing therapies and evolution of newer management approaches. In particular they could help shape new ways of thinking about hallucinations.
2.3 Psychological models of hallucination

The metacognitive model of hallucination can be seen as a progression from existing models in an attempt to address the difficulties arising from these other accounts. In order to provide a context for the metacognitive model other psychological models of hallucination are briefly described in the following section (see Bentall, 1990a; Asaad & Shapiro, 1986 for more detailed reviews). These models can be broadly divided into theories of development and maintenance of hallucinatory experiences.

2.3.1 Models of hallucination development

There is a consensus that hallucinations are the misattribution of internal cognitive events to an external source. A model of hallucination development needs to explain the cause of the misattribution; how it arises and why the result is a hallucination. The explanations forwarded by theorists can be divided into deficit models (e.g. Frith, 1987; Hoffman, 1986; David, 1994) and bias models (e.g. Bentall, 1990a; Slade & Bentall, 1988).

Deficit models suggest that impairments in cognitive neuropsychological architecture cause intrusions of normally pre-conscious events into consciousness. According to these models, hallucinations are forms of pre-conscious speech that the individual has become aware of because of their deficit. The ‘leakage’ of pre-conscious material into awareness, not being recognised as being internally generated, is consequently attributed to an external source. Thus Frith (1987) argues that impaired internal monitoring results in confusion about the source of internally generated information. In comparison David (1994) and Hoffman (1986) suggested intrusions were due to impairments at different stages of the language-processing pathway.
Bentall (1990a) in a review suggested that the above models failed to account for the psychological factors that were known to influence the occurrence of hallucinatory experiences. Bentall (1990a) and Slade (1976) identified four variables they believed had an effect on the occurrence of hallucinations. These were predisposing factors, arousal, environmental stimulation and reinforcement (Slade & Bentall, 1988). In response to these concerns Bentall (1990a) proposed a bias model that integrated a deficit mechanism (as a predisposing factor) with the psychological variables known to influence hallucinations.

Central to this model was the concept of 'reality discrimination', which is a normal cognitive activity that determines the source of an experience (i.e. whether internal or external). Bentall (1990a) described this as a judgement that uses all available information including physical quality, such as the clarity of the experience, cues in the environment or preceding events. The four factors identified by Slade (1976) were hypothesised to bias judgement by influencing the quality of available information and how it was utilised. For example, high arousal could limit the ability to process all the information about an experience or lead the individual to adopt a certain style leading to erroneous judgements. Predisposing factors such as expectations drawn from culture and experience could also lead individuals to be more willing to decide that an event was a hallucination.

Whilst there was some experimental support for the concept of reality discrimination (Bentall, 1990a) the model did not explain how these factors interacted to produce hallucinations. This was not a flaw in the model as its key advantages were in identifying the psychological factors and possible psychological mechanisms in hallucinations.
2.3.2 Models of hallucination maintenance

The previous models failed to acknowledge the distress that is often reported with hallucinations in the clinical setting. A number of theorists have adopted the standard cognitive formulation of anxiety and depression (Beck, Rush, Shaw & Emery, 1980) to understand this aspect of hallucinatory experience and guide interventions. These include Chadwick and Birchwood’s (1994) model of voice appraisal, Kingdom and Turkington’s (1994) normalising rationale and Tarrier, Harwood, Yusupoff, Beckett, and Baker’s (1990) coping strategy enhancement (CSE).

These models shared many aspects of cognitive-behavioural therapies differing only in the area of focus. The shared principles were that responses to hallucinations were determined by core beliefs. In distressed individuals these lead to appraisals of the experience as a threat to physical or psychological integrity. The appraisals then generate responses that actually maintain the hallucination and perpetuate a cycle of distress. The models emphasised the treatment concerns, which were addressed by modifying beliefs underlying the appraisal or interrupting the distress cycle associated with hallucinations. These methods were very similar to those employed in treatments for depression and anxiety (Beck, Rush, Shaw, & Emery 1980). For example education about the meaning of the experience (normalising rationale, Kingdon & Turkington, 1994), developing alternative strategies for coping (coping strategy enhancement, Tarrier et al, 1990) and challenging beliefs about feared consequences (Chadwick & Birchwood, 1994).
2.3.3 Criticisms of development and maintenance models

The above models provided a useful account of the development and maintenance of hallucinations. They have led to new, innovative, treatments and challenged the view that symptoms of psychosis are not understandable within a psychological context. However these models can only be considered as partial explanations of the hallucinatory phenomenon. Models of hallucination development do not explain why the experiences are distressing for some individuals. Similarly maintenance models do not attempt to explain why some hallucinations are experienced. Yet clearly a comprehensive model of hallucination needs to explain both these aspects and their interactions. This is especially the case if it is acknowledged that psychological factors have an important role (Slade & Bentall, 1988).
2.4 The metacognitive model of hallucination

The metacognitive model of hallucination (Morrison, 2001) can be seen as an integration of models of hallucination maintenance and development. The model is an application of Wells and Mathew's (1994) general metacognitive model of psychopathology to hallucinations. A description of the core concepts of Wells and Matthew's model (1994) is therefore necessary before discussing its application to hallucinations.

2.4.1 A metacognitive model of psychopathology

The metacognitive model (Wells & Matthew, 1994) was an attempt to develop the standard cognitive-behavioural model by clearly defining and operationalise concepts such as schema and beliefs. The model integrated ideas from recent developments in cognitive psychology and attempted to provide greater detail of how the cognitive and behavioural components interacted. The aspects of the model that are important in understanding psychological disorders are Metacognition and the Self-Regulatory Executive Function (Wells & Mathews, 1994). These are briefly described in the following sections.

2.4.1.1 Metacognition

Wells (2000, pp.7) defined metacognition as "any knowledge or cognitive process that is involved in the appraisal, monitoring or control of cognition". Wells (1995) described three types of metacognitions that formed the metacognitive component; these were metacognitive knowledge, experience and control strategies.
Metacognitive knowledge comprises of all the beliefs and theories held by individuals and stored as implicit plans that guide processing and interpretation. It was from these appraisals that individuals defined themselves and the world. In this respect these appraisals are comparable to schema.

Metacognitive experiences were defined as the appraisals of specific mental events. Wells (2000) stated that the catastrophic appraisal of these events was implicated in many emotional disorders. Appraisals are drawn from feelings or theories the individual has about their cognitions. Lastly, Wells (2000, p10) defined metacognitive control strategies as "the responses an individual made in an effort to control the activity of their cognitive system". Wells (2000) suggested that some control strategies were less helpful than others were.

2.4.1.1 The Self Regulating Executive Function (S-REF)

The S-REF was hypothesised as three interacting levels of cognition (Wells & Matthews, 1994). These included low-level processing units, an active executive level and the level of self-beliefs. The low-level processing units are an automatic network outside conscious awareness but which can intrude into consciousness. The controlled processing level is where conscious decisions are made through the control of thoughts and actions following the appraisal of events. This level demands attentional resources and relies on the store of self-knowledge for execution. The final level of self-beliefs is the store of self-knowledge and includes a metacognitive component that is implicated in the development of psychological disorders.

The S-REF functions to reduce the discrepancy between the desired and actual states of the self. The S-REF is a particular configuration of the cognitive system that deals specifically with this task. Information about the actual state is received from
cognitive, bodily or external sources. The representations of the desired state are
drawn from self-beliefs, which included metacognitive beliefs. In the event of
information that signals a discrepancy, self-knowledge is accessed. This guides the
appraisal of the information and the execution of strategies (including metacognitive
control strategies) in order to reduce the discrepancy between the desired and actual
states.

In normal conditions this is a brief process whereby the individual adopts a plan that
processes the discrepancy. For example a person feeling hungry might decide to eat to
achieve the desirable state of not feeling hungry. This process can also operate in the
other direction, as one solution to a discrepancy might be to change the desired state.
Thus the hungry person could decide that the desired state of feeling full is not
achievable if they are to continue their diet (and in the process a distraction strategy
might be used to cope with the feelings of hunger). Thus metacognitive processes
influence and are influenced by the external and internal environments. This is shown
in Figure 2.1.
Figure 2.1 The S-REF model (from Wells, 2000)
2.4.1.3 The role of the S-REF in psychological disorder

In psychological disorder the SREF remains active as the discrepancy between desired and actual states fails to reduce. This occurs because the individual adopts counter-productive plans that perpetuate the discordant state (Wells & Mathews, 1994). This is a perseverative condition where the individual continues to apply an ineffective strategy. For example an intrusive thought could be appraised as threatening if an individual holds metacognitive beliefs that all thoughts must be controlled. This could lead to the implementation of a plan to avoid further intrusions by preventing them. Such a plan could involve increasing vigilance for possible threats (by increasing internally focused attention for intrusive thoughts) and actively suppressing any intrusions using strategies such as replacing the thought with another image or by thinking of the opposite thought.

Difficulties can arise if these strategies are ineffective, for example thought suppression can increase intrusions or prevent exposure to the feared condition. This can result in a vicious cycle with increasing use of ineffective strategies. Difficulties can be exacerbated as these efforts demand attentional resources further preventing the individual from considering alternatives. Thus the S-REF activity to reduce discordance between the desired state (no intrusive thoughts) and the existing condition (experience of intrusion) becomes perseverative. Wells (2000) suggests that changing strategies or metacognitive beliefs about the desired state can interrupt this activity.
2.4.2 A Metacognitive model of hallucination

The metacognitive model (Morrison, 2001) uses the concept of perseverative SREF activity and the role of metacognitive beliefs to explain the development and maintenance of hallucinations. The model of hallucination was developed in two stages and eventually combined into a single theoretical framework. Morrison, Haddock and Tarrier (1995) initially proposed a model explaining how hallucinations developed. Morrison (1998) then applied the cognitive model of panic to understand the maintenance of hallucinations and the development of distress.

These aspects of the metacognitive model are described in the sections below. A diagram of the model is shown in Figure 2.2.

Figure 2.2. The metacognitive model of hallucination (from Morrison, 2001)
2.4.2.1 Hallucination development

Morrison, Haddock and Tarrier (1995) proposed that hallucinations were intrusive thoughts that had been misattributed to an external source. The external attribution was an escape from the cognitive dissonance between the experience of an intrusive thought and the metacognitive beliefs held by the person.

Cognitive dissonance is defined as the state that exists when two cognitions’ contradicted one another and one that the individual is motivated to escape (Festinger, 1957). The state of dissonance depends on both the feelings of personal responsibility and the expectation of aversive consequences (Cooper & Fazio, 1984, cited in Morrison, Haddock & Tarrier, 1995). Externalisation of an intrusive thought reduces the sense of personal responsibility or the expected aversive consequences. Metacognitive beliefs were therefore responsible and necessary for dissonance to occur. For example, holding a belief that all thoughts must be controlled is inconsistent with an intrusive thought (an uncontrolled cognitive event) and could lead to dissonance. Externalisation avoids dissonance by making an ‘other’ (a hallucination) responsible for the experience.

2.4.2.2 Maintenance of hallucinations

Morrison (1998) proposed that the general metacognitive model of psychological disorder (Wells & Matthews, 1994) could be applied to understand the distress psychosis. Specifically the catastrophic appraisal of hallucinatory experiences leads to distress. This was through the perseverative action of the S-REF as the individual strives to prevent their hallucinations (Morrison, 1998). Morrison (1998) suggested
that psychosis differed from other psychological disorders only in the way that a
distressed individual attempted to cope with their hallucinatory experience. Thus
observers might describe an individual shouting back at their hallucinations (or
responding in any other ‘odd’ behaviour) as having a psychotic episode. According to
the SREF the reliance on and continued application of ineffective strategies actually
perpetuates the distress and hallucination. Morrison (1998) used the analogy of panic
disorder (Clark, 1985) to describe how an individual experiencing hallucinations
might behave. An individual experiencing panic attacks (voices) might make
catastrophic interpretations of bodily symptoms, cognitive events or environmental
factors. The erroneous interpretation could be that they were going to have a heart
attack (going mad). They could also show hyper-vigilance to any symptoms
(intrusions) and avoidance of risky activities (sleeping). The adoption of these
strategies means the beliefs remain unchallenged with the individual eventually
spending a great deal of effort maintaining the condition with few resources available
to consider alternatives.

Therefore the metacognitive appraisals of hallucination were hypothesised to be
important in the responses generated. One implication from the model was that if
hallucinations were not appraised as catastrophic they would not result in distress.
Morrison (1998) suggested precisely this by stating that hallucinations were normal
experiences and only become psychosis when appraised as a threat. Therefore
psychosis was defined as a state of distress signalled by the activation of threat-related
behaviours rather than the experience of hallucinations. Morrison (2001) went further
by suggesting an individual's explanation of hallucinatory experiences was also
important in determining if a catastrophic appraisal was made. Crucially it was only
when an experience went beyond available explanation that distress occurred. Thus the model was able to account for the observation that hallucinations were common in some cultures and that individuals were known to engage these experiences without distress. Morrison (2001) suggested that transition to psychosis occurred when the individual no longer believed they had control over their experiences.

2.4.3 Advantages of the metacognitive model

The metacognitive model was felt to have a number of strengths over other theories. A significant advantage of the model was in providing a single framework to understand the development and maintenance of hallucinations. While other accounts have also attempted to provide a single explanatory model (Garrety, Kuipers, Fowler, Freeman & Bebbington, 2001) these have undergone little experimental testing. Other similar models could be better described as heuristic as they suggest an association of factors without providing an explanation of the interactions between them (e.g. Slade & Bentall, 1988). The model also placed psychosis and hallucinations within the context of normal experience, providing a means to understand clinical and non-clinical experiences. Few other models have made a similar attempt to provide an explanation of hallucinations in non-clinical populations. In addition the metacognitive model enabled hallucinations to be integrated into general cognitive-behavioural models of psychological disorders. The application of the S-REF (Wells & Mathews, 1994) also made the metacognitive model more consistent with current cognitive psychology. Finally by explicitly defining the role of metacognition the model was testable unlike models that proposed impairments in hard to observe neuropsychological processes.
2.4.4 Research supporting model

There have been a number of studies generally supportive of the cognitive models of hallucination and these are consistent with the metacognitive model (see Morrison, Haddock & Tarrier, 1995; Morrison, 1998, 2001 for a review of this evidence). However for this reason such studies could not be used as definitive evidence for the metacognitive model. The following sections therefore reviews studies that have directly tested hypotheses derived from the metacognitive model. The central premise of these studies is that individuals experiencing hallucinations hold different metacognitive beliefs and thought control strategies compared to non-hallucinating individuals. These studies have attempted to demonstrate such differences.

Morrison and Haddock (1997) first demonstrated evidence of differences in the metacognitive beliefs held by hallucinating and non-hallucinating groups. They compared hallucinating, non-hallucinating and control groups on their ratings of control over words generated in an association task. This task required participants to provide words in response to those read out by the researchers. Participants were also required to rate how much control they had over the words they generated. The study reported that hallucinators showed a trend of rating their control as lower than the other groups, although this was not statistically significant. This was argued to be consistent with the metacognitive model as it suggested hallucinators believed they had insufficient control over their thoughts, a metacognitive belief that thoughts should be controlled. Thus an intrusion (an uncontrolled thought) being inconsistent with such a belief resulted in cognitive dissonance. The absence of significant differences was attributed to the small sample size (15 in each group) and the lack of sensitivity in the method of rating control.
Baker and Morrison (1998) attempted to remedy some of the methodological concerns in a replication study. They found that consistent with the metacognitive model the hallucinating group scored significantly higher on the ‘uncontrollability’ and ‘positive beliefs about worry’ sub-scales of the Metacognitive Beliefs Questionnaire (MCQ, Cartwright-Hatton & Wells, 1997). The uncontrollability scale measured beliefs about the need to be in control of thoughts and the dangers associated with a loss of control. The positive belief scale referred to ideas that worrying was helpful in dealing with problems. The study concluded that hallucinations could arise from dissonance between contradictory beliefs that thoughts must be controlled and the experience that little control actually existed. The researchers also suggested that positive beliefs about worry could also lead to dissonance. Thus individuals relied on worry as a way of coping with threats but at the same time become concerned if they lost control of their worries.

Although demonstrating differences between the metacognitive beliefs held by hallucinating and non-hallucinating groups both studies used patient and non-patient groups for comparisons. There were inherent difficulties in this method including the effect of other differences between groups such as medication usage or the presence of co-morbid conditions. In addition the small sample size that was inevitable when using clinical groups also made reliable differences difficult to establish. The reliability of grouping patients into hallucinating and non-hallucinating categories was also unknown (Morrison & Haddock, 1997). However it could be argued that these factors would have reduced the probability of a significant difference by blurring the distinctions between groups.
Further support for the model came from Morrison, Wells and Nothard (2000) study using a non-clinical student population. This study compared the scores of two groups on the sub-scales of the MCQ and the Though Control Questionnaire (TCQ, Wells & Davies, 1994). The TCQ provides measures of the thought control strategies individuals’ believe are effective in dealing with unpleasant thoughts.

The groups were formed of individuals with a high and low predisposition to hallucinations as measured by an adapted version of the Launay-Slade Hallucination Scale (LSHS, Launay & Slade 1981). Positive beliefs about unusual experiences were also measured by asking participants to rate how much they believed their hallucinatory experiences were beneficial and helped them cope with life. The study found that individuals who were highly predisposed to hallucinations scored higher on the ‘cognitive self consciousness’ and ‘uncontrollability’ scales of the MCQ and was supportive of earlier studies. Highly predisposed individuals also showed a preference for ‘punishment’ and ‘reappraisal’ strategies of the TCQ. This was the first demonstration of differences in thought control strategies between groups. The increased use of punishment was consistent with literature from intrusive thoughts studies suggesting this strategy could paradoxically maintain hallucinations (Wells & Davies, 1994). However reappraisal has been associated with healthy coping (Wells & Davies, 1994) so the implications of this group showing higher scores on both strategies were not clear. The group also reported more positive beliefs towards their experiences compared to those less predisposed to hallucinations. Based on this result the researchers concluded that individuals could initially find hallucinations rewarding and actively engage in them. However distress might occur when the individual no longer believed the experience was under their control. This was an
intriguing prospect as it tallied with clinical observation that patients often engaged with hallucinations and for a variety of reasons (Chadwick & Birchwood, 1994).

Only one other study explored the differences in thought control strategies between hallucinators and non-hallucinators. Morrison and Wells (2000) compared the scores of hallucinating patients and non-hallucinating former patients on the TCQ. They predicted that the hallucinating group would report greater use of punishment and worry strategies whilst the non-hallucinators would report greater use of distraction and reappraisal strategies. These predictions were supported by the results with the exception of reappraisal, which did not show a difference between groups. The fact that reappraisal did not follow the prediction was perhaps consistent with Morrison, Wells and Nothard (2002) who also suggested that individuals with a high predisposition to hallucinations might favour this strategy. However the role of the strategy in maintaining hallucinations was not clear and suggested the need for further research to improve understanding.

Although these findings seemed to support the view that certain metacognitive beliefs and thought control strategies were necessary in hallucinations it was equally possible that they simply reflected a general difficulty, coping style or other co-morbid conditions. A distinction between these could not to be made from the above studies. Lobban, Haddock, Kinderman and Wells (2002) explored this possibility by comparing different clinical groups, including schizophrenic patients with and without hallucination, anxiety patients and non-patients on the MCQ and measures of mood and anxiety. Crucially this study also statistically controlled for anxiety and depression in the analysis. Their rationale was that the MCQ positively correlated with anxiety having been designed for use in anxiety related disorders. Therefore
differences between groups could be an artefact of not controlling for this association. Consistent with this prediction the study found that the only difference between hallucinators and non-hallucinators was that they reported less confidence with their thoughts. The only other difference was between hallucinators and anxiety patients with the former reporting greater beliefs in the need for consistency of thoughts. The researchers suggested that the combination of anxiety related intrusive thoughts with low confidence and beliefs about consistency of thoughts contributed to the occurrence of auditory hallucinations. Thus an anxious individual might have intrusive thoughts, which as they were less confident about the veracity of their experiences were more likely to be attributed to an external source. However it was not clear why there were no differences between the hallucinators and non-hallucinators on cognitive consistency if this belief also contributed to the development of hallucinations.

These findings posed significant difficulties for previous studies, which had not reported using such controls. However the study had used a shortened version of the MCQ, which might have resulted in reduced sensitivity to beliefs important in hallucinations. In addition the cognitive consistency and cognitive confidence scales were newly developed and their psychometric properties were not as well established as the MCQ. This suggested that further work was necessary to demonstrate the reliability of the findings.
2.4.5 Summary

The studies reviewed showed some support for the metacognitive model. In particular there appeared to be evidence for the role of metacognitive beliefs about uncontrollability and self-consciousness in hallucinations. Studies exploring differences in thought control strategies also suggested that strategies such as punishment, reappraisal and worry could be implicated in the maintenance of hallucinations. However the above studies cannot be accepted as definitive evidence for the metacognitive model as a number of questions remained. The following sections discuss these issues and the areas that are thought to warrant further research.
2.5 Research gaps

2.5.1 Role of explanation in hallucination and metacognitive beliefs

The metacognitive model proposed an important role for explanation in the appraisal of hallucination (Morrison, 2001). However the review of existing research showed a notable absence of any investigations of this relationship. Although Morrison, Wells and Nothard (2000) did measure positive beliefs towards unusual experiences there was no evidence of what these beliefs were and what they meant to respondents. However, although the role of explanation was not directly explored in the above studies it was likely that many participants held the widespread belief that hallucinations were a sign of mental illness and therefore catastrophic. The implication of this observation was that such explanations could have been a confounding factor in the above studies. Thus it was possible that for groups with alternative explanations different metacognitive beliefs might be shown to be important in the development or maintenance of hallucinations. This was because beliefs about controlling thoughts or being aware of thoughts might only be important to someone holding a view that such experiences were signs of mental ill health. Furthermore Morrison (2001) suggested that the absence of explanation resulted in the transition to psychosis by the activation of unhelpful strategies. This implied that individuals with explanations for their experiences could hallucinate in the absence of unhelpful strategies or other signs of psychological morbidity. Neither of these possibilities has been tested in the existing research literature.

In fact the role of metacognitive beliefs in the development of hallucinations was not entirely clear. Although the model suggested metacognitive beliefs had an influence in the development of hallucinations (Morrison, Haddock & Tarrier, 1995) it also
proposed these beliefs were elicited following a hallucination (Morrison, Wells & Nothard, 2000; Morrison, 2001). In addition the metacognitive beliefs identified in the studies related to dangers of losing control and being aware of thought processes. These could easily be understood as a response to rather preceding hallucinatory experiences especially if interpreted as a catastrophic event. Whether these beliefs also had a role in the development of hallucinations could not be determined from these studies and remains unclear. This raises the question of whether metacognitive beliefs were present before, or activated following, a hallucinatory experience.

2.5.2 Role of anxiety in hallucination

Although the studies showed a difference between groups on measures of metacognitive belief and thought control strategies, this did not necessarily demonstrate a direct relationship. In particular the finding that anxiety could be a confounding variable (Lobban et al, 2002) suggested that anxiety and perhaps other factors could have an influence. There is therefore a need to see if these findings are reliable especially as different scales were used. In addition a similar study has not been conducted with thought control strategies and it is conceivable that anxiety could have a similar role.
2.6 Hallucinations in non-clinical populations

From the above review it was apparent that explanation for hallucination had an important role in the metacognitive model. In particular the model suggested that hallucinations were a normal experience and could occur in the non-clinical population. In addition provided an individual held a sufficient explanation they could experience hallucinations without other signs of psychological morbidity or distress. This also implied there could be differences between hallucinating individuals who did experience distress compared to those who did not. However it was not clear from the model how such explanations prevented distress and the transition to psychosis.

There have however been investigations of hallucinations in non-clinical populations and which could provide further indirect evidence for the above proposals. The following section reviews this evidence by drawing on comparative and factor analytic studies. Before this the evidence that hallucinations are a frequent occurrence and independent of psychopathology is examined.

2.6.1 Frequency of hallucination in non-clinical populations

A number of studies have sought to estimate the prevalence of hallucination in the adult population. The earliest surveys (commissioned by the Psychical Society) of Sidgewick (1894) and West (1948) found between 8 and 14 per cent of adults reported hallucinatory experience at least once in their lifetime. Some caution in accepting these rates would be justified especially as they used a non-random volunteer sample. However more recent studies with better controls also found similar frequencies. Tien (1991) reported between 10 and 15 per cent for lifetime prevalence
of hallucination and an annual prevalence of between four and five per cent. Studies of college students however found much higher rates of hallucinatory experiences of between 30 and 40 per cent for lifetime frequency (Barret & Etheridge, 1992; Posey & Losch, 1983). Although much higher these figures were consistent with evidence indicating an inverse correlation between hallucination and age (Verdoux & van Os, 2002). However the estimates were based on respondents endorsing any item on a range of hallucinatory experiences. Posey and Losch (1983) suggested a much smaller proportion of the population, five and ten per cent respectively, might have heard a voice and conversed with it or experienced a voice giving advice. The most conservative estimate was observed in Johns, Nazroo, Bebbington and Kuipers (2002) study of prevalence from a survey exploring the mental health experiences of people in England and Wales. They found that four per cent of the sample responded positively to a question about hallucinations and only one per cent responded positively to an additional question about hearing voices. However the study differed from others as it asked only about experiences in the previous year, rather than over a lifetime although even with these qualifications the estimate was significantly smaller than others were.

Despite the seemingly large range in the estimates these studies appeared to support the claim that hallucinations were common in the non-clinical population consistent with Morrison’s (2001) claim that hallucinations were a normal experience. However the large differences between the studies does require an explanation. One reason could be in the types of questions used and context surrounding the surveys. For example, Tien (1991) and Johns et al (2002) reported the most conservative rates from large-scale surveys of mental and physical health however only two items in
their questionnaires actually referred to hallucinations. Within this context individuals might have chosen not to report their experiences or felt they were not relevant to the information being collected. Individuals might have been more likely to report hallucinatory experiences when given examples rather than if simply asked whether they have had an ill-defined experience.

Conversely the tendency to overstate experiences also needed to be considered. This might have occurred from misunderstanding questions, the demand characteristics or the need to present in a certain manner to the researcher (Verdoux & van Os, 2002).

Studies reporting large rates of hallucination in non-clinical populations such as Sidgewick (1849) and West (1949) could be susceptible to these criticisms. However in many of these studies when a positive response to the hallucination question was given respondents were invited to an interview to eliminate the possibility of psychopathology or mis-reporting (Johns et al, 2002; Tien, 1991; Sidgewick, 1849; West, 1948). Barret and Etheridge (1992) also used the Symptom Checklist (SCL-R 90, Derogatis, 1983) and the Minnesota Multiphasic Personality Inventory (MMPI, Hathaway & McKlinley, 1989). These enabled the researchers to determine if respondents were reporting in a defensive manner, responding to demand characteristic of the study or had symptoms of major mental health difficulties. However these tools are fallible and would not have detected substance use or other behaviours known to cause hallucinations.

An additional frailty in establishing prevalence was that many of the studies used non-random samples. Both Tien (1991) and Johns et al (2002) surveyed randomly selected populations as part of larger surveys. However, although the latter reported interviewing individuals who endorsed items about hallucinations, this was a self-
selected group. This raised the question of whether those who declined to be interviewed had existing, but undiagnosed psychopathology or had in fact misreported. The remaining studies used individuals responding to surveys or volunteering to take part in studies. The differences between volunteers and those who refused to take part were unknown and raised the question of whether the sample was an accurate representation of the population.

Despite these methodological weaknesses there appeared to be some agreement in the estimates of prevalence of hallucination in the adult population. These suggested that between four and ten per cent of the population has a hallucinatory experience at some point in their lifetime. The rates appeared contingent on the questions being asked and their context. However even with these considerations the rate of hallucination in the non-clinical population appeared to be much larger than the proportion of individuals presenting to clinical services. This supported the assumption of the metacognitive model that hallucinations were a normal part of cognitive experience. The above studies also provided some evidence that these occurred in the absence of other psychological difficulties.

### 2.6.2 Factor analytic studies

Factor analytic studies have been conducted in the context of research within schizotypy. The general aim of these studies has been to show dissociation between the different features of schizophrenia and in particular evidence for the view that unusual experiences could occur in the absence of other difficulties. These studies were considered relevant to the implication from the metacognitive model that
hallucinations were be present in the non-clinical population and without psychological morbidity.

The concept of schizotypy has developed from a number of directions and is therefore difficult to define. The concept attempts to describe individuals who present with features of schizophrenia but to a markedly lesser degree. Many other terms have also been used to describe these characteristics and the meaning differs between theoretical camps (Claridge, 1997). The view that the features of schizophrenia might be normally distributed is not new (Strauss, 1969) and has been referred to as the continuity hypothesis (Johns & van Os, 2001) or the dimensional model (Claridge, 1997). The application of such models to the existing understanding of schizophrenia has been an area of much research and two positions have developed. One perspective, the quasi-dimensional model has suggested that schizotypy is an attenuated, sub-clinical, form of schizophrenia. Others, including Claridge (1997) have adopted a fully dimensional perspective where the independent variation in the expression of a number of predisposing factors to the psychotic experience leads to a range of presentations. Consequently an individual might describe some experiences associated with psychosis yet show few other signs of psychopathology. For proponents of this view one aim has been to demonstrate the continuum between unusual experiences (in otherwise ‘healthy individuals’) and psychosis. Strands of this research have involved factor analytic studies of schizotypy and are relevant to the current review. The factor analytic technique aims to statistically derive independent factors that describe a range of variables as efficiently as possible. Factor analytic studies have attempted to demonstrate that some measures load on particular factors and an argument is made that these reflect independent processes.
Bentall, Claridge and Slade (1989) reported a factor analytic study of a large number of scales, which included measures of personality and schizotypy. They described four factors that corresponded to the positive and negative symptoms of schizophrenia, cognitive disorganisation with social anxiety and a final factor described as dis-inhibited and asocial schizotypy. This suggested that positive symptoms (such as hallucinations) could occur independently of anxiety and the negative features of schizophrenia, at least within a non-clinical population. McCreery (1993, cited in Claridge, 1997) was also able to replicate this finding with a larger non-clinical sample. This study was unusual in using participants with 'out-of-body' hallucinations, which were described as the experience of leaving the body for brief periods. Claridge, McCreery, Mason, Bentall and colleagues (1996) also reported a four-factor model of schizotypy in a factor analysis of a large (over 1000) sample of individuals. This was actually a combination of two earlier studies (Bentall, Claridge & Slade, 1989 and McCreery, 1993, cited in Claridge, 1997) with additional data to produce a large student and adult sample. The use of large samples is particularly important in factor analysis as the procedure can be criticised for being overly sensitive to sampling errors resulting in over-fitting to the data and producing factor solutions that cannot be generalised (Tabachnick & Fiddel, 1996). The combination of the two studies was therefore appropriate and the resulting sample size increased the robustness of their findings. The largest factor was called the 'aberrant perceptions and beliefs scale', onto which measures of hallucinations and magical beliefs loaded strongly. This was distinct from other factors, which were called 'cognitive disorganisation with anxiety', 'asocial behaviour' and 'introvertive anhedonia'. The study argued that these factors
corresponded to the negative symptoms of schizophrenia whilst the 'aberrant perception' factor measured the positive symptoms (Claridge et al, 1996; Claridge, 1997). Smaller studies have found varying degrees of factors, ranging from one (Kelley & Coursey, 1992) to three (Liddle, 1987; Rossi & Daneluzzo, 2002). These studies exemplify the difficulties inherent in this technique and the need for cautious interpretation. However the most consistent result was that multiple factors were needed to explain the positive and negative features of schizophrenia. The implication being that hallucination as the positive features of schizophrenia could occur in the absence of other difficulties. Further support for this notion came from McCreery and Claridge (2002) who compared hallucinators (out-of-body experiences) and non-hallucinators. They found that hallucinators scored significantly higher on measures of the 'aberrant perception' factor whilst there were no differences on scales measuring other factors. This was interpreted as evidence that individuals prone to hallucinations could be otherwise healthy. These findings were consistent with the implications of the metacognitive model, namely that hallucinations could occur in the absence of other psychopathology. However the paper also recognised that 'out of body' experiences were very different to clinical hallucinations and individuals often reported having a high degree of control over the former. This was a valid observation and raised the question of whether clinical and non-clinical hallucinations could be meaningfully compared.

There has been some equivocal evidence supporting the claim that clinical hallucinations are comparable to non-clinical experiences. Launay and Slade (1981) in developing a scale to measure predisposition to hallucination found that day dreaming and vividness of imagery loaded onto the same factor, which they called the
“tendency to hallucinatory experiences”. This result has been replicated by others (Aleman, Nieuwenstein, Bocker & Haan, 2001). In comparison, Levitan, Ward, Catts and Hemsley (1995) reported a four-factor structure using a similar predisposition scale on a psychiatric population. They found that the clinical examples of hallucinations, such as hearing a voice and being troubled by voices formed a separate and distinct factor. However since different populations were used in both studies this result needs further replication. Levitan et al (1995) interpreted their findings as indicating that hallucinations in clinical populations could further separate in a way not observed in non-clinical populations. This suggests caution is needed when making comparisons between clinical and non-clinical experiences.

2.6.3 Comparisons of hallucinations in clinical and non-clinical groups

The metacognitive model suggested that the transition to psychosis occurred when an individual was unable to explain their experiences. Although there appeared to be some support for this notion from factor analytic studies it was unclear if clinical and non-clinical hallucinations were comparable experiences. The following section reviews studies examining clinical and non-clinical hallucinators with a particular emphasis on the role of explanation in coping.

Romme and Escher (1989) were the first to demonstrate the existence of a sizeable number of voice hearers in the general population who were coping with their experiences and not receiving psychiatric treatment. The significance of this study was to open up a line of research that had previously not been considered. The study achieved this by recruiting participants from callers to a studio following a television programme about hearing voices. Over 450 callers reported hearing voices and of
those 150 felt they were able to cope. Interviews with 20 from each group revealed that individuals held a variety of explanations for their voices including mystical, biological or paranormal. Coping strategies appeared to be derived from these explanations. Thus an individual believing that their voices were a sign of paranormal ability (such as telepathy) engaged in attempts to control this ability. The study suggested that these explanations could be divided into psychological/ internal and non-psychological/external in origin. The former was considered more helpful as they encouraged development of skills to 'master' experiences. External, non-psychological explanations such as attributing voices to biological causes or ghosts were argued to be less helpful as individuals felt unable to control them. The study therefore proposed a possible mechanism by which explanations for hallucinations could facilitate coping and prevent distress. However this paper was really a descriptive collection of experiences recounted by respondents and there was no attempt at statistical analysis. In a follow up study Romme, Honig, Noorthoorn and Escher (1992) invited the original callers to complete an open-ended questionnaire exploring the form of the voices (i.e. number, frequency and emotional tone) and coping strategies. Over 170 questionnaires were suitable for statistical analysis and just under half were from those not receiving any clinical services making it one of the largest surveys of its kind. The study found that those who described themselves as 'copers' reported using strategies such as setting limits (by setting aside time when they would engage with their voices) and ignoring the voices, they also rated the voices as being more positive. Distraction was more likely to be used by those describing themselves as 'non-copers'. In addition two main forms of distraction were described, these included physical activities such as jogging or abstract practices
including meditation or drawing a cloak around the mind. Copers were also less likely to be in receipt of psychiatric services. However no attempt was made by this study to see if copers also differed in the type of explanations held about their experiences.

The researchers also noted that the sample was self-selected and there was a high attrition rate of respondents, which raised concerns about the reliability of the findings. In addition the study had not investigated whether any of the respondents in the non-clinical group had ever received or presented to psychiatric services. Finally the validity or reliability of the questionnaire used in the study had not been evaluated. Such weaknesses meant that the safest conclusion was that a substantial number of individuals heard voices in the absence of psychological distress. Honig, Romme, Ensink, Esher and colleagues (1998) in a comparison of voice hearers reported findings that were more robust although with fewer numbers (between 15 and 18 in each group) and a self selected sample. They compared the form and content of hallucinations in three groups, patients with schizophrenia, dissociative disorder and a non-patient voice-hearing group. A formal psychiatric interview was conducted with all participants and those from the non-patient voice hearer group who indicated some psychopathology were excluded from the study. The study found that the form of the hallucinations (hearing a dialogue or running commentary) did not differ between the groups. Thus the non-patient group’s hallucinations met clinically defined criteria yet occurred in the absence of any other psychological difficulties. However, there were significant differences in the content, locus of control and emotional quality of the voices between the patient and non-patient groups. The non-patient group tended to perceive their voices as predominantly positive, were not alarmed by them and felt in control of the experiences.
These findings have implications for studies comparing clinical and non-clinical groups as they suggest important differences in the experiences, which could have an impact on coping. If the psychiatric hallucinations were less positive and more emotional then they could lead to distress regardless of the coping strategy used. However it was also possible that employing better coping strategies could lead to more positive experiences because of or in addition to a greater sense of control.

Johns, Hemsley and Kuipers (2002) provided further indirect support that explanations could be helpful in the choice of coping strategies. They compared auditory hallucinations in a psychiatric group diagnosed with schizophrenia and a non-psychiatric group who were reported to have tinnitus. Despite differences in the type of hallucination, the psychiatric group reported verbal hallucination whereas the tinnitus group reported musical hallucinations; both groups were distressed by their perceived lack of control over the experience. The psychiatric group also reported greater feelings of fear, which was related to the appraisal of the voice. They perceived their hallucinations as threatening or an indication of mental illness, whilst the tinnitus group tended to understand the experience in terms of a brain injury or defect. The tinnitus group also adopted a systematic analysis of the hallucination by searching for possible sources of the sound before establishing that it was in fact a development of their tinnitus and hence a hallucination. The psychiatric group were reported to leap to the conclusion that they were hearing ‘real’ voices in their head. The study concluded that the intrusive nature of the hallucination was by itself distressing. However the appraisal and attribution of the experience appeared to determine the emotional responses. From this it followed that the appraisal could determine the type and effectiveness of a coping strategy, a view that was consistent
with Romme and Escher (1989) and the metacognitive model (Morrison, 2001).

In addition the results suggested that not all biological explanations were unhelpful. This was consistent with Romme and Escher's (1989) view about the role of explanation in helping develop more assertive coping strategies. The actual content of the belief could be less important and two apparently similar beliefs could lead to quite different coping behaviours. This could also apply to individuals with spiritual explanations for their experiences as shown by following studies.

Greenberg, Witztum and Buchbinder (1992) made a detailed investigation of the hallucinatory experiences, religious beliefs and practices of four individuals who had been diagnosed with a psychotic disorder. They reported that the hallucinations could be understood within the context of the particular beliefs held by the individuals, as they did not differ qualitatively from those reported by others holding the same beliefs but without a diagnosed psychosis. The researchers suggested that a diagnosis was made based on the duration of the state, ability to control the experience and associated deterioration of habits. This seemed to occur as the individuals became increasingly more involved in the rituals associated with their beliefs. The researchers also observed that the individuals actively sought the experiences and only came to the attention of services following concern from family and friends. Jackson and Fulford (1997) found similar relationships when comparing five individuals who had reported strong spiritual experiences with five individuals who had recovered from a major psychosis, but still described their experiences in strongly spiritual terms. Jackson and Fulford (1997) found that both groups described experiences that could be thought of as "pathological" and there was little difference between them. For example both groups described having little volitional control over the experience and
lacked insight over the possibility that it could be anything other than spiritual. However the undiagnosed group were also less overwhelmed by their experience and reported fewer negative experiences (Jackson & Fulford, 1997).

2.6.4 Summary

The above studies provided some support for the view that hallucinations were a normal event in non-clinical populations. The evidence from epidemiological surveys appeared to be robust although estimates of frequency varied. However even with the most conservative estimates more individuals appeared to experience hallucinations than those actually presenting to clinical services. In addition the dissociation of hallucination from other psychological difficulties was supported by factor analytic studies. These suggested that hallucinations could occur without other symptoms of pathology in some non-clinical groups. However generalisations beyond the studies needs to be made cautiously due to the type of analysis and hallucinations used. The literature comparing clinical and non-clinical hallucinators revealed two main themes. Firstly there was evidence that hallucinations in non-clinical groups were more controlled, less distressing and more positive. This was equivocal as other studies suggested non-clinical hallucinations did not differ in content or form to those observed in clinical populations. There was also evidence that non-clinical groups differed in the way they appraised hallucinations and this directly influenced coping strategies. The appraisal appeared to be dependent on the explanation that individuals held about their experiences. Thus holding beliefs that permitted mastery of the hallucinations were more beneficial. The limited accounts suggested this process could be more important than the actual beliefs itself.
The relationship between ability to cope with experiences and explanations were not clear. The interpretations were complicated by the possible differences between clinical and non-clinical experiences. The possibilities were that clinical hallucinations were more distressing in content and form, which could leave individuals unable to cope regardless of their appraisal. Alternatively individual’s appraisals of their experiences could lead to ways of behaving that either increased or decreased their sense of control and the quality of the experiences.
2.7 The metacognitive model in clinical and non-clinical populations

The review of the metacognitive model identified that cultural explanation might have a role in the maintenance of hallucinations although this had not been explored in existing research. Drawing from broader areas of research evidence was found that hallucinations were more common than previously thought and might occur in the absence of psychological morbidity. Studies also reported a difference between clinical and non-clinical groups in the types of hallucinatory experience and the way they were managed. Collectively these studies suggested ways in which explanation might influence the development and maintenance of hallucinations. These possibilities are discussed below in the context of the metacognitive model.

2.7.1 Cultural explanation, distress and thought control strategies

The metacognitive model suggested that the transition to psychosis occurred when hallucinations could not be explained by cultural knowledge. The markers of distress were the use of certain thought control strategies that perpetuated the experience. Punishment and worry strategies were considered particularly unhelpful in this respect whilst healthier responses were associated with reappraisal and distraction strategies. From this it follows that individuals who experienced hallucinations yet did not appear distressed could be using different and more helpful thought control strategies such as distraction and reappraisal. Morrison (2001) does not explain why certain cultural explanations might not result in distress. One interpretation from the metacognitive model could be that if an experience were understandable then it would not be appraised as threatening. However examination of the limited studies exploring hallucinations in spiritual populations suggested that simply having an explanation
was not sufficient to prevent distress. Romme and Escher (1989) described a subtler interaction between explanation and distress where the content of the explanation was less important than whether it enabled the use of strategies that prevented distress from occurring. Thus helpful explanations were those that facilitated development of strategies where the individual could gain 'mastery' over their experience. However the explanation could determine the type of the strategy favoured. Thus individuals with spiritual or parapsychological explanations might engage in very different behaviours although these could share the same function of developing control over the hallucinations. Similarly the form that the distress takes could also reflect underlying explanations. An individual believing their voices were a real person could shout back at them whilst someone believing they were spirits could engage in religious rituals or behaviours. The implication was that individuals with different explanations could also differ in the type of strategies used to control the experiences. However the important factor may be whether explanations enable individuals to take control of the hallucinations.

2.7.2 Metacognitive beliefs, hallucinations and explanations

The metacognitive model suggested that beliefs about the need to control thoughts were necessary in the development and maintenance of hallucinatory experiences following a catastrophic appraisal. However the possible relationship between metacognitive beliefs and explanations remained unclear. Explanation could function by preventing a threatening appraisal of hallucinations and not activating metacognitive beliefs about controllability and self-consciousness. The model also implicated the role of metacognitive beliefs in the development of hallucinations.
suggesting that hallucinators would report them regardless of explanation. Thus these
beliefs could have an important role despite the explanation held about experiences.
However it was unclear why metacognitive beliefs about the need to control thoughts
were important to individuals holding different explanations (other than mental
illness) for their experiences. If an individual believed spirits were responsible for
their experiences (intrusions or hallucination) then beliefs about controlling the mind
are irrelevant and unlikely to be dissonant or threatening. Nevertheless the need to
control these experiences appeared to be important in the non-clinical hallucinations
and could still be an important factor in whether distress occurs.
2.8 Future work

The review of the metacognitive model identified some areas needing further investigation. In particular these were regarding the role of explanation in hallucinations and distress. Examination of less direct research of hallucinations in clinical and non-clinical groups found some support for the metacognitive model. These enabled speculation about the role of explanation in hallucination. However there was a need to test these relationships to improve the theoretical understanding of the hallucinatory experience within the metacognitive framework. The following section describes the rationale for such an investigation and some of the methodological considerations.

2.8.1 Rationale

The review of clinical and non-clinical studies suggested that explanation could have an important role in determining the type of metacognitive beliefs and thought control strategies that were elicited following hallucinatory experiences. In order to examine this relationship a comparison of groups with different explanations for their experiences could be made on measures of metacognitive beliefs. The expectation would be that if explanation had no influence then individuals who were more prone to hallucinations would score higher on certain thought control strategies and metacognitive beliefs. However if explanation was important then differences should exist across groups. The review suggested that such a study would be best conducted with non-clinical participants. In particular based on these studies a spiritual belief group would provide the best example of an alternative belief group. The reasons for this view are discussed below along with other methodological considerations.
2.8.2 Methodological concerns

2.8.2.1 Choice of experimental group

The experimental group would need to be chosen carefully as the review suggests that variations within explanations might have an effect on appraisals. The criteria would be a clearly defined explanation that facilitates the development of coping skills. Romme and Escher (1989) identified a range of possible alternative explanations that may be helpful. They suggested that an explanation with an emphasis on personal development is more likely to be beneficial and lead to better coping. In addition any such population would need to be easily defined and present (and accessible) in sufficient numbers within the general population.

2.8.2.2 Appropriate comparisons

The literature also indicated that clinical hallucinations were more negative, less controllable and more overwhelming than the experiences described in non-clinical groups. The factor analytic studies also suggested measures of hallucination had different statistical properties across psychiatric and non-patient groups. Therefore comparison of non-clinical and clinical samples might not be meaningful. However within the clinical population variation might still exist within a hallucinating group. This could be in terms of the appraisal of the experience and the frequency or intensity of the hallucinations. These factors are easily measured by accessing a non-clinical group using measures of predisposition to hallucination. In addition the use of psychometric measures makes comparisons easier and more meaningful.


2.8.2.3 *Effects of confounds*

A non-clinical population would have fewer confounding variables such as use of neuroleptic medications and co-morbidity with other conditions. In addition the clinical population by definition holds a pathological view of hallucinations or has reached a level of difficulty that requires clinical intervention. Healthy individuals who hold very different beliefs would be less likely to access these services. A non-clinical population would also offer the opportunity of larger sample sizes that could lead to improved reliability of findings. However studies within the non-clinical literature suggest that anxiety could have a confounding role and this would need to be controlled in any analysis.
2.9 Conclusions

The metacognitive model offered a promising framework in which to understand hallucinations. However a review of the existing research, whilst generally supportive indicated areas for further investigation.

The role of explanation in the development of psychosis was highlighted as an area requiring further research. This was because the mechanism for this role had not been clearly explained in the model and there had been little experimental research. Examination of research in non-clinical populations and from other theoretical positions provided further support for the model. These suggested that hallucinations could be considered as normal experiences that were not necessarily associated with psychological difficulty or distress. The studies also suggested a possible relationship between explanations and coping with hallucinations. However these studies also suggested important differences between clinical and non-clinical hallucinations, which further complicated interpretation.

On the basis of this review a possible mechanism linking metacognitive beliefs, thought control strategies and explanations was speculated based on the observations made by Romme and Escher (1989). This suggested that explanations might mitigate distress by enabling the use of helpful strategies. In terms of the metacognitive model this meant that individuals with helpful explanations used different thought control strategies to those who held unhelpful explanations. The review also described a rationale for testing this relationship. From the literature review recommendations were made for using a non-clinical group and in particular those with spiritual beliefs to ensure appropriate comparisons, reduce the effects of confounds and preserve the homogeneity of the helpful belief group.
2.10 Research questions

The current study aims to explore the role of spiritual beliefs in the relationships between hallucinations, metacognitive beliefs and thought control strategies. The questions are as follows.

2.10.1 Question 1

What is the role of spiritual beliefs in the relationship between hallucinations and metacognitive beliefs?

This led to the following hypotheses

Metacognitive beliefs about the uncontrollability and self-consciousness are necessary in the development of hallucinations and in particular:

a) There will not be a significant difference between the spiritual and non-spiritual groups on correlations between hallucinations and metacognitive beliefs.

b) The spiritual group will report greater predisposition to hallucinations corresponding to significantly greater beliefs about uncontrollability and self-consciousness.
2.10.2 Question 2

*What is the role of explanation in the use of thought control strategies in response to hallucinations?*

This led to the following hypotheses.

*The spiritual group by having a different explanation for hallucinations will use different thought control strategies to the non-spiritual group and in particular:*

a) The non-spiritual group will show positive correlations between hallucinations and punishment, worry and reappraisal strategies that will be significantly different to the spiritual groups.

b) Despite reporting more experiences that are hallucinatory, the spiritual group will not show a correspondingly greater use of punishment, reappraisal and worry strategies.
2.11 Research aims

The metacognitive model of hallucination is essentially a cognitive behavioural formulation. According to the model the thoughts and beliefs held about a hallucinatory experience determines the subsequent emotional and behavioural responses. A catastrophic appraisal of such experiences results in a cycle of distress similar to other psychological difficulties. The model suggests this can occur if the experience cannot be explained by the available cultural knowledge.

Explanation therefore has an important role in the metacognitive model as it determines whether or not a hallucinatory experience will be distressing. The implication is that differences may be observed between individuals holding very different explanations for their experiences.

This study aims to test this possibility by comparing a spiritual belief group with a non-spiritual belief group. The assumption being that the spiritual group will hold more positive normalising explanations for hallucinatory experiences compared to a non-spiritual belief group. The expectations are that differences will exist between the groups in the way they respond to and manage these experiences.
3. Method

3.1 Design

The purpose of the current study was to test hypotheses about the role of explanation in hallucinatory experiences. To this aim a quantitative between and within subject design was thought to be most appropriate comparing the associations between hallucinations and the dependent variables.

The independent variables were spiritual beliefs (spiritual and non-spiritual beliefs) and predisposition to hallucination. The dependent variables were self-report measures of anxiety, thought control strategies and metacognitive beliefs (see section 3.3 for further details).

3.2 Participants

3.2.1 Power analysis

A power analysis conducted before the study established the required sample size to achieve an adequate level of power. This revealed that 30 to 50 participants were required in each group (for a large to moderate sized association) corresponding to a two tailed .05 level of significance and power of 80 (Cohen, 1988). Sample size was therefore set at minimum of 50 participants for each group, which anticipated a moderate effect size consonant with previous literature (Morrison, Wells & Nothard, 2000).
3.2.2 Inclusion criteria

Participants for the study were recruited from three sources between November 2003 and February 2004. Participants were included if they were over 18 years of age and had a good ability to understand English. Those with difficulty in understanding the information sheet or questionnaire instructions because of language difficulties were excluded from the study. The possibility of translating questionnaires into other languages was considered, however this was felt to be impractical because of the impact translation would have on questionnaire validity.

3.2.3 Definition of groups

The study was a comparison of two groups consisting of individuals holding strong spiritual beliefs with those who did not hold such beliefs. There was a need to define these populations as clearly as possible for reliable allocation to groups.

3.2.3.1 Spiritual belief group

Very little agreement exists in the literature about operational definitions of spiritualism (Hill & Pargament, 2003). To avoid difficulties in attempting to develop an adequate definition a more pragmatic approach was adopted. Thus the spiritual group was defined as those attending spiritual churches associated with the Spiritualist National Union (SNU). The SNU promotes a particular form of spiritualism through their churches with educational, self-development sessions as well as church services. The SNU (SNU, 2002, www.snu.org.uk/homeo2.htm) has defined spiritualism as a “belief that contact can be made with spirits and that they continue to have an influence in our lives”.

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3.2.3.2 Non-spiritual group

The non-spiritual group was defined as individuals who did not attend spiritual church and did not hold beliefs about spiritualism.

3.2.4 Sampling strategy

Participants were recruited from three sources: Adult Education Colleges, Spiritual Churches and Mediums registered with the SNU. Two questionnaires were allocated to the spiritual group for every one from the general population. This was done to ensure sufficient numbers of individuals were recruited for the spiritual group as a postal questionnaire method was being employed for the mediums, which is vulnerable to poor response rates (Frankfort-Nachmias & Nachmias, 1996). Recruitment sites for the church attendees and mediums were identified from the Spiritualist National Union (SNU) Web site. The Adult Education Colleges were identified from local directories.

3.2.4.1 Spiritual group

Mediums

A list of mediums was drawn from the SNU web site (www. snu.org.uk/spirit.htm), which lists the names and addresses of qualified mediums, registered with the SNU. The web site also indicated the degree of mediumship with a grading system, which reflected the level of training, and practice undertaken as a medium. Only individuals with a D grade were approached for the study. This meant that an individual had been
observed by their peers to demonstrate sufficient level of mediumship ability. The individual would also have had to complete significant training to qualify for this grade. This ensured that recruited individuals showed a substantial commitment to their belief.

Church attendee group

Individuals were recruited from a weekly ‘Awareness’ group that took place at spiritual church. This was an introductory group where interested individuals could learn more about spiritualism. They would not have undertaken any training and could be best described as having some interest that played a significant role in how they understood events in their lives.

3.2.4.2 Non-spiritual group

This group was sampled from local Adult Education Centres.

3.2.5 Reliability of allocation

In order to increase the reliability of the allocation individuals from each source were also asked questions about their beliefs (see section 3.3.6). The purpose of this was to eliminate the possibility of individuals being wrongly allocated to a group simply because they happened to be at a particular site. Clearly attendees of adult education colleges could also hold spiritual beliefs and conversely not all those at spiritual church would necessarily consider themselves spiritualists.
3.3 Measures

A number of individual inventories and measures formed the research instrument, which was constructed to elicit information relating to the following key variables.

3.3.1 Demographics

Socio-demographic details were measured to ensure groups were matched. These included gender, age and occupation (appendix 9).

3.3.2 Metacognitive Questionnaire (MCQ Cartwright-Hatton & Wells, 1997)

The MCQ (appendix 6) consists of 65 items in total providing a measure of individual differences on five sub-scales. These are (1) Positive beliefs about worry (e.g. "Worrying helps me cope"). (2) Negative beliefs about worry focusing on uncontrollability and dangerousness (e.g. "When I start to worry I cannot stop"). (3) Low cognitive confidence (e.g. "I have a poor memory), (4) General negative beliefs, which includes themes about superstition, punishment, responsibility and need for control (e.g. "Not being able to control my mind is a sign of weakness"). (5) Cognitive self-consciousness (e.g. "I play close attention to the way my mind works). Items were rated on a 4-point Likert scale with (1) indicating ‘never’ and (4) ‘always’. The sub-scale scores comprised the sum of the ratings for items corresponding to the sub-scale. A total score can be obtained by summing the ratings for all items.

The MCQ also showed good psychometric properties with good levels of internal consistency (Cronbach’s alpha ranging from .72 to .89). Reliability was also high (r= .76-.89) over a 5-week test-retest period (Cartwright-Hatton & Wells, 1997). The MCQ has been validated across a number of clinical and non-clinical populations. In
addition the MCQ has been previously used in studies exploring hallucination and metacognitive beliefs in clinical and non-clinical populations. Nevertheless at 65 items the MCQ was very long and a shortened version was considered (MCQ-SAM, Lobban, Haddock, Kinderman & Wells, 2002). However as this had not been as widely validated as the MCQ with other populations or measures it was not felt to be suitable.

3.3.3 Thought Control Questionnaire (TCQ Wells & Davies, 1994)

The TCQ (appendix 7) is a 30-item measure of individual differences in the use of thought control strategies; there are five sub-scales that corresponded to different strategies. (1) **Distraction** (e.g. “I do something I enjoy”). (2) **Social control** (e.g., “I ask my friends if they have similar thoughts”). (3) **Worry** (e.g. “I focus on different negative thoughts”). (4) **Punishment** (e.g. “I punish myself for thinking the thought”). (5) **Re-appraisal** (e.g. “I try to re-interpret the thought”).

Each item was rated on a 4-point scale ranging from (1) ‘never’ to (4) ‘almost always’ and the scores for each scale is the sum of ratings for items corresponding to the scale. A total TCQ score can also be obtained by summing the individual sub-scales. The TCQ has good psychometric properties with high internal consistency (Cronbach’s alpha ranging from .64 - .79) for the five sub-scales. Test-retest reliability was also acceptable (r=0.67-0.83) over a five-week test-retest period (Wells & Davies, 1994). The TCQ was originally developed for use in anxiety disorders although it had been validated on non-clinical populations (Wells & Davies, 1994). The TCQ has also been used in studies exploring hallucination and metacognitive beliefs (Morrison & Wells, 2000; Morrison, Wells & Nothard, 2000) and is the only current measure of thought control strategies.
3.3.4 Launay-Slade hallucination scale (LSHS Launay & Slade, 1989; Morrison, Wells & Nothard, 2000)

The Launay-Slade hallucination scale (appendix 5) provides a measure of the predisposition to hallucination. The current study used a modified version of the scale developed by Morrison, Wells and Nothard (2000). The modified Launay-Slade hallucination scale (LSHS) consists of 13 items that are endorsed using a 4-point Likert scale with (1) indicating ‘never’ and (4) indicating ‘almost always’. This includes items such as “I have seen a person’s face in front of me when no one was there”. The scale shows reasonable internal consistency (Cronbach’s alpha ranging from .75 and .64). The LSHS has been used in a number of studies exploring hallucination in the clinical and non-clinical population and has demonstrated validity as a measure of hallucination predisposition (Launay & Slade, 1981; Levitan et al, 1995). Although other measures of hallucinatory experiences were available the LSHS was chosen as it had been used in similar studies with the modified version developed specifically to measure predisposition to hallucination in non-clinical groups.

3.3.5 State-Trait Anxiety Inventory (STAI Spielberger, 1983)

The STAI (appendix 8) consists of two separate scales measuring State and Trait anxiety. Only the Trait anxiety scale was used in the current study. This scale measures the relatively stable tendency to perceive stressful situations as threatening and can be administered independently. The trait anxiety scale consists of 20 items that are responded to on a 4-point Likert scale. The internal consistency of the STAI was acceptable (Cronbach’s alpha ranging from .86 to .94). The STAI was preferred
over other measures of anxiety as it provided a measure of trait anxiety not measured by other tests. The STAI had also been used in studies exploring metacognition and hallucination in clinical and non-clinical population and has been validated for these populations (Spielberger, 1983).

3.3.6 Spiritual beliefs questions

The purpose of these questions was to increase the reliability of the allocation to groups (appendix 9). Thoresen (1999) suggests that degree of participation (such as frequency of church attendance) with self-ratings of belief was a better indicator of the importance of belief than self-ratings alone. Thus participants were asked if they held spiritual beliefs and to indicate on a visual analogue scale the extent to which they used their beliefs to understand events in their life. They were also asked if they attended spiritual church and to indicate how often (ranging from never, once per week or more than once per week).
3.4 Procedure

3.4.1 Ethical approval

Ethical approval was obtained from the Ethics committee in December 2003 (appendix 1). Permission was also obtained from Adult Education Colleges, the Spiritualist National Union (SNU) and two Spiritualist Churches to approach individuals on their premises. The proposal was shared with staff at the Adult Education colleges and Spiritual Churches to generate strategies over the most effective and appropriate method of recruiting participants.

3.4.2 Pilot

A pilot study was conducted in December 2003. This involved asking three individuals from the church and college sites to complete the questionnaire pack. Two mediums associated with the SNU also completed the questionnaires. The results of the pilot indicated that the pack took 20-30 minutes to complete. Amendments were made to the information sheet and the instructions for the questionnaires. For the information sheet the title of the study appeared to cause confusion, particularly in relation to metacognitive beliefs (see appendix 2). This was explained within the information sheet so that the link between the aim of the study and the title was made clearer. A change in the procedure was also adopted following pilot study. The questionnaires were felt to be too long for completion within one session so individuals were provided with an opportunity to post their responses.
3.4.3 Recruitment

3.4.3.1 Non-spiritual group

Students at the Adult Education College were approached during their break period and asked if they were interested in participating in the study. Potential participants were given the information sheet and informed that the researcher would return the following week with questionnaires. Questionnaires were distributed to participants who had the option to return them the following week or post them to the researcher. The researcher continued to visit the Adult Education College until the target of 50 participants was reached.

3.4.3.2 Church attendees

The researcher visited two Spiritual churches in the Leicester region to recruit participants. The visits were timed to occur during regular services and educational meetings. These were forums attended by people interested in developing their beliefs and knowledge in spiritualism. Participants were approached by the researcher and information sheets issued. Participants were informed that the researcher would return the following week with questionnaires to be completed at home and returned by post.

3.4.3.3 Mediums

Individuals were randomly selected from a list of registered mediums obtained through the SNU web site. Individuals were telephoned to establish if they would be interested in completing the questionnaires and to confirm their qualification. Interested participants were sent the questionnaire pack to complete.
3.4.3.4 Response rate

Questionnaires were handed to 150 individuals, 50 from each site. A total of 85 were returned (57 per cent) and from these 6 were spoiled and unsuitable for further analysis. The numbers returned from each group are shown in Table 3.1.

Table 3.1. Number of questionnaires returned from each site

<table>
<thead>
<tr>
<th>Source</th>
<th>Medium (50)</th>
<th>College (50)</th>
<th>Church (50)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number returned</td>
<td>31</td>
<td>45</td>
<td>9</td>
</tr>
<tr>
<td>Number spoiled</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
<td>42</td>
<td>7</td>
</tr>
</tbody>
</table>

3.4.3.4 Allocation to groups

The response from the church sample was obviously below the numbers indicated by the power analysis. A sizeable number from the college sample also reported holding spiritual beliefs and so were allocated to the church-attending sample (see Figure 3.2). The plan had been to combine the church and medium samples to form a single spiritual group. However this was reconsidered, as the response from the church sample was very poor. In addition combining the groups was thought to be problematic theoretically as the mediums represented individuals with very strong and clearly defined beliefs. Since the aim of having a spiritual belief group was to have a group with clearly defined and strong beliefs combing them with another group where
this was unknown was not ideal. For this reason the decision was made to remove the church group from subsequent analyses. The non-spiritual group therefore represented those describing themselves as not holding any spiritual beliefs recruited from the adult education colleges. The spiritual group was composed only of the mediums.

Figure 3.2 Allocation of participants to groups

<table>
<thead>
<tr>
<th>Source</th>
<th>Medium</th>
<th>College</th>
<th>Church</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
<td>42</td>
<td>7</td>
</tr>
<tr>
<td>Group</td>
<td>Spiritual</td>
<td>Non-spiritual</td>
<td>Church-attendees</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
<td>32</td>
<td>17</td>
</tr>
</tbody>
</table>
4. Results

4.1 Data analysis

Data was analysed using the Statistical Package for the Social Sciences (SPSS) version 10.1. The data analysis was conducted in a number of stages. A thorough process of data cleaning was undertaken to reduce the effects of outliers and ensure a normal distribution. Reliability analyses were conducted on all scales as they were being applied to new population. A descriptive analysis of the two groups was completed to see if they differed significantly on measures of age, anxiety, gender and employment. The aim of this analysis was to also describe the groups to aid generalisation. Finally the hypotheses drawn from the literature review were tested.

4.1.1 Test of assumptions for parametric analysis

The use of parametric tests was the preferred choice of analysis due to their greater power and range. The data was first examined to ensure that the assumptions for these were not violated. These require measurements to be at interval or ratio level, homogeneity of variance and for data to be normally distributed (Clark-Carter, 2001). However parametric tests are considered robust to minor violations of these assumptions (Field, 2000, cited in Clark-Carter, 2001). Although the scores from the standardised measures were obtained using Likert scales they were treated as interval data, which in psychological research is an acceptable violation (Tabachnick & Fidell, 1996). The assumption of normality was assessed using the Kolmogorov-Smirnov test and visual inspection of distributions. This was necessary, as the Kolmogorov-Smirnov test could be oversensitive to variations observed in small samples. The test
showed that four sub-scales of the MCQ (Positive beliefs about worry, uncontrollability, Cognitive competence and General negative beliefs) deviated significantly from normal. In addition three sub-scales of the TCQ (distraction, punishment and worry) also deviated from normal. Visual inspection of distributions suggested these were comparatively small departures. Transformations were applied to normalise the data. All were normalised with the exception of the punishment and worry scales of the TCQ. The homogeneity of variance was assessed using the Levene test on the variables that were normalised. This showed that only the uncontrollability subscale of the MCQ violated this assumption. Tabachnick and Fiddel (1996) suggest that a more conservative level of p<.01 is applied to infer statistical significance in such cases.

Parametric tests were therefore felt to be appropriate for the transformed data as the assumptions could be met. Where the data did not meet the assumptions a non-parametric analysis was applied and compared to parametric analysis. Since no significant differences were apparent results from the parametric analysis were reported. The significance level was set at p<.05 in keeping with convention within psychological research (Clark-Carter, 2001) however for all post-hoc analyses this was adjusted using a Bonferroni correction.
4.2 Reliability analysis

Cronbach’s alpha was calculated for all the scales for each group. This was necessary, as few of the scales had been applied to the spiritual population. Tables 4.1, 4.2 and 4.3 show the Cronbach’s alpha for each scale.

Table 4.1 Alpha levels for subscales of the MCQ in spiritual and non-spiritual groups

<table>
<thead>
<tr>
<th>MCQ sub-scale</th>
<th>Group (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Spiritual (28)</td>
</tr>
<tr>
<td>Positive worry beliefs</td>
<td>.85</td>
</tr>
<tr>
<td>Uncontrollability and danger</td>
<td>.72</td>
</tr>
<tr>
<td>Cognitive competence</td>
<td>.87</td>
</tr>
<tr>
<td>General negative beliefs</td>
<td>.77</td>
</tr>
<tr>
<td>Self consciousness</td>
<td>.80</td>
</tr>
</tbody>
</table>

Table 4.2 Alpha levels for subscales of the TCQ in spiritual and non-spiritual groups

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Group (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Spiritual (28)</td>
</tr>
<tr>
<td>Distraction</td>
<td>.80</td>
</tr>
<tr>
<td>Punishment</td>
<td>.29</td>
</tr>
<tr>
<td>Reappraisal</td>
<td>.71</td>
</tr>
<tr>
<td>Worry</td>
<td>.71</td>
</tr>
<tr>
<td>Social control</td>
<td>.63</td>
</tr>
</tbody>
</table>

Table 4.3 Alpha levels of STAI and LSHS in spiritual and non-spiritual groups

<table>
<thead>
<tr>
<th>Measure</th>
<th>Group (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Spiritual (28)</td>
</tr>
<tr>
<td>Trait anxiety</td>
<td>.95</td>
</tr>
<tr>
<td>LSHS</td>
<td>.88</td>
</tr>
</tbody>
</table>
The analysis suggested that internal reliability of the measures reached the accepted minimum of 0.7 for many of the scales (Kline, 1997, cited in Clark-Carter, 2001). The punishment scale was the exception as it was well below the required levels of reliability for both groups. Since this scale was composed of only six items Tabachnick and Fiddel (1996) suggest that inter-correlations were a better indicator of reliability. However the inter-correlations for the punishment scale were still below acceptable levels. This meant the assumption that the scale was measuring a unitary construct was not tenable. The punishment scale was retained in the analysis additional post-hoc analyses were also conducted on the individual items composing the scale.
4.3 Research findings

4.3.1 Description of participants

The populations were described based on their scores on the scales used in the study. This was important, as the groups had not been compared on these scales before and to support generalisations beyond the sample.

4.3.1.1 Gender and age

A total of 50 females and 10 males responded to the study. There were therefore substantially greater numbers of female respondents in all the groups. A Chi square statistic indicated there was no difference in the distribution of male and female respondents across the groups ($X^2 = 0.054$, df= 1, p>.05).

A one-way ANOVA showed that the spiritual group was significantly older than the non-spiritual group ($F= 40.8; df=1,58, p<.01$). The mean age and gender ratios for the groups are presented in Table 4.4.

Table 4.4. Mean age (SD) and gender ratio of spiritual and non-spiritual groups

<table>
<thead>
<tr>
<th>Measure</th>
<th>Spiritual (28)</th>
<th>Non-spiritual (32)</th>
<th>Total (60)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>63.3 (9.8)</td>
<td>42.7 (14)</td>
<td>52.1 (15.7)</td>
</tr>
<tr>
<td>Male: Female</td>
<td>5:23</td>
<td>5:27</td>
<td>10:50</td>
</tr>
</tbody>
</table>
4.3.1.3 Employment

Visual inspection of the data showed that most respondents described themselves as being employed as shown in Table 4.5. A Chi square statistic was conducted to test this impression. To permit this the retired, student and missing categories were collapsed to form a single other category. The analysis confirmed that overall significantly more respondents were employed ($X^2 = 6.5, \text{df} = 1, p < .05$).

Table 4.5. Employment status of spiritual and non-spiritual groups

<table>
<thead>
<tr>
<th>Group (N)</th>
<th>Spiritual (28)</th>
<th>Non-spiritual (32)</th>
<th>Total (60)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed</td>
<td>14</td>
<td>24</td>
<td>38</td>
</tr>
<tr>
<td>Retired</td>
<td>8</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Student</td>
<td>1</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Missing</td>
<td>5</td>
<td>1</td>
<td>6</td>
</tr>
</tbody>
</table>

4.3.1.4 Anxiety

A one-way ANOVA was applied to test for differences across the groups on levels of anxiety. This revealed that the spiritual group reported significantly lower levels of anxiety than the non-spiritual group ($F = 10.9, 1, 58, p < .05$). The mean anxiety scores for each group are shown in Table 4.6.

Table 4.6. Spiritual and non-spiritual groups anxiety mean scores (SD)

<table>
<thead>
<tr>
<th>Group (N)</th>
<th>Spiritual (28)</th>
<th>Non-spiritual (32)</th>
<th>Total (60)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>33.3 (6.5)</td>
<td>40.2 (9.2)</td>
<td>36.9 (8.7)</td>
</tr>
</tbody>
</table>
4.3.1.5 Non-clinical status

Comparison of participants’ scores on the MCQ, TCQ, STAI and LSHS against existing normative figures showed they were consistent with a non-clinical sample. All individuals were within the expected range for a non-clinical population on the STAI (Spielberger, 1983), MCQ and TCQ (Cartwright-Hatton & Wells, 1997; Wells & Davies, 1994). In the case of the LSHS the reported scores were comparable to the only other study using this scale (Morrison, Wells & Nothard, 2000).

4.3.1.6 Summary of descriptive statistics

The results of comparisons between the groups showed that there were significant differences. The spiritual group tended to be older and reported less trait anxiety than the non-spiritual group. Both groups also contained a greater proportion of female respondents. Comparison of scores with normative values (where available) showed they were consistent with a non-clinical sample.
4.3.2 Addressing Research Questions

4.3.2.1 What is the role of spiritual beliefs in the relationship between hallucinations and metacognitive beliefs?

There have not been any studies directly exploring the role of spiritual beliefs in the relationship between metacognitive beliefs and hallucinations. The metacognitive model proposed that metacognitive beliefs were important in the development of hallucinations. Studies have implicated the role of metacognitive beliefs about uncontrollability and self-consciousness in the development of hallucinations. Furthermore Morrison, Wells and Nothard (2000) also observed that individuals with positive beliefs about unusual experiences reported more hallucinatory experiences. Higher predisposition to hallucination also corresponded with increased scores on uncontrollability and self-consciousness scales. This led to the following hypotheses in relation to question one:

**Metacognitive beliefs about uncontrollability and self-consciousness are necessary in the development of hallucinations and in particular:**

a) The spiritual and non-spiritual groups will show the same relationships between hallucinations and metacognitive beliefs and

b) The spiritual group will report significantly more hallucinatory experiences and beliefs about uncontrollability and self-consciousness compared to the non-spiritual group.
4.3.2.2 Relationships between metacognitive beliefs and hallucinations

In order to examine the hypotheses bivariate correlational analyses were conducted using Pearson Product Moment. The correlations between the LSHS, MCQ subscales and trait anxiety are displayed in Table 4.7.

Table 4.7. Correlation between LSHS and MCQ in spiritual and non-spiritual groups:

<table>
<thead>
<tr>
<th>MCQ subscale</th>
<th>Spiritual (28)</th>
<th>Non-spiritual (32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive beliefs</td>
<td>.13</td>
<td>.29</td>
</tr>
<tr>
<td>Uncontrollability</td>
<td>.02</td>
<td>.67**</td>
</tr>
<tr>
<td>Cognitive competence</td>
<td>.33</td>
<td>.36</td>
</tr>
<tr>
<td>Negative beliefs</td>
<td>.33</td>
<td>.26</td>
</tr>
<tr>
<td>Self consciousness</td>
<td>.38*</td>
<td>.60**</td>
</tr>
<tr>
<td>STAI (Trait anxiety)</td>
<td>.45*</td>
<td>.60**</td>
</tr>
</tbody>
</table>

* p<.05, **p<.01

The non-spiritual group showed the expected significant correlations between hallucinations (LSHS) and the uncontrollability and self-consciousness subscales. The latter accounted for 36 per cent of variance in the LSHS scores whilst uncontrollability explained 45 per cent and indicated a large effect size (Clark-Carter, 2001). The other sub-scales of the MCQ also revealed moderate sized associations with LSHS. The only significant relationship in the spiritual group was between self-consciousness and LSHS, explaining 14 per cent of the variance (a moderate effect size, Clark-Carter, 2001). Cognitive competence and general negative beliefs also showed a moderate relationship with LSHS for the spiritual group. Although not
statistically significant Clark-Carter (2001) recommends effect size is a better indicator of the importance of a variable when using small samples.

Lobban, Haddock, Kinderman and Wells (2002) suggested that trait anxiety could confound comparisons between groups on the MCQ. The significant correlation between the STAI and the LSHS therefore warranted further investigation. To explore this bivariate partial correlations controlling for anxiety were conducted using Pearson Product Moment. The partial correlations between LSHS and subscales of the MCQ are displayed in Table 4.8.

Table 4.8. Partial correlations between LSHS and MCQ in spiritual and non-spiritual groups: Partial Pearson’s r

<table>
<thead>
<tr>
<th>MCQ sub-scales</th>
<th>Spiritual (28)</th>
<th>Non-spiritual (32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive beliefs</td>
<td>.12</td>
<td>.03</td>
</tr>
<tr>
<td>Uncontrollability</td>
<td>-.04</td>
<td>.50*</td>
</tr>
<tr>
<td>Cognitive competence</td>
<td>.26</td>
<td>.13</td>
</tr>
<tr>
<td>Negative beliefs</td>
<td>.35</td>
<td>.11</td>
</tr>
<tr>
<td>Self consciousness</td>
<td>.38*</td>
<td>.44*</td>
</tr>
</tbody>
</table>

* p<.05, **p<.01

The analysis revealed that for the non-spiritual group uncontrollability and self-consciousness subscales still accounted for a significant proportion of the variance in hallucination scores (25 per cent and 16 per cent respectively). For the spiritual group the self-consciousness subscale remained statistically significant accounting for 12 per cent of the variance in the hallucination scale. Thus there was little change in the
overall pattern of associations. To investigate if the observed differences in correlations between the spiritual and non-spiritual groups were statistically significant a z-test was conducted following a Fisher transformation (Clark-Carter, 2001). This test provides the probability of two correlations occurring within the sample population. The analysis revealed that the non-spiritual group had a significantly higher correlation ($z=2.88; p<.05$) and partial correlation ($z=2.01, p<.05$) between uncontrollability and LSHS than the spiritual group. There were no statistical differences between the other correlations. The non-spiritual and spiritual group therefore appeared to show the same relationship between LSHS and the self-consciousness sub-scale of the metacognitive questionnaire.
4.3.2.3 Differences between spiritual and non-spiritual groups on the LSHS and MCQ

Evidence that the spiritual group reported more hallucinatory experiences came from examination of responses to specific items on the LSHS. The experience of hearing one’s thoughts spoken aloud has often been quoted as a first rank symptom of schizophrenia. Morrison, Wells and Nothard (2000) found that 24 per cent of their sample reported this experience on the LSHS (item 8, appendix 5). In the current study a similar proportion of the non-spiritual group (28.1 per cent) also reported this experience. This compared to the much larger proportion of spiritual group (46.7 per cent) who responded positively to this item.

A one-way ANOVA was undertaken to examine group differences on the LSHS and the MCQ sub-scales. The ANOVA confirmed that the spiritual group scored higher on the LSHS (F=12.2, 1,58, p< .05). There were no other significant differences between the groups. Mean scores for the groups on the LSHS and MCQ subscales are presented in Table 4.9.

Table 4.9 Mean (SD) LSHS and MCQ subscale scores for spiritual and non-spiritual groups

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Spiritual (28)</th>
<th>Non-spiritual (32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSHS</td>
<td>22.5 (6.2)</td>
<td>17.9 (3.8)</td>
</tr>
<tr>
<td>Positive beliefs</td>
<td>28.1 (7.5)</td>
<td>32.2 (10.5)</td>
</tr>
<tr>
<td>Uncontrollability</td>
<td>28.1 (6.2)</td>
<td>30.8 (11.7)</td>
</tr>
<tr>
<td>Cognitive competence</td>
<td>17.0 (5.7)</td>
<td>17.3 (6.2)</td>
</tr>
<tr>
<td>Negative beliefs</td>
<td>24.0 (6.3)</td>
<td>22.1 (7.5)</td>
</tr>
<tr>
<td>Self consciousness</td>
<td>17.8 (5.3)</td>
<td>16.6 (4.5)</td>
</tr>
</tbody>
</table>
The spiritual group did not therefore show the expected difference in metacognitive beliefs despite reporting more hallucinatory experiences. There did appear to be a trend for the spiritual group to report more beliefs about self-consciousness. However the group also differed significantly on age and anxiety and a covariate analysis was conducted to explore the effects of these variables on the observed differences on the LSHS. This showed that the difference between the groups remained (F= 20.6, df=1,58, p<.05). A covariate analysis was not conducted for the MCQ scales as the power of such an analysis would have been very low and would have required a large effect size to produce a significant difference (Tabachnick & Fidell, 1997). The estimated means for the groups are shown in Table 4.10.

Table 4.10. Estimated group means (SE) for spiritual and non-spiritual groups

<table>
<thead>
<tr>
<th>Group (N)</th>
<th>Subscale</th>
<th>Spiritual (28)</th>
<th>Non-spiritual (32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSHS (SE)</td>
<td>23.7 (1.0)</td>
<td>17.6 (0.81)</td>
<td></td>
</tr>
</tbody>
</table>

75
4.3.2.4 What is the role of spiritual beliefs in the use of thought control strategies in response to hallucinations?

There have not been any studies directly investigating the role of spiritual beliefs in the use of thought control strategies. However, studies have indicated that punishment, worry, and reappraisal strategies may be unhelpful in managing hallucinatory experiences (Morrison & Wells, 2000; Morrison, Wells & Nothard, 2000). Romme and Escher (1989) suggested that some explanations such as spiritual beliefs might prevent difficulties by enabling individuals to develop strategies that were more helpful. This led to the following hypothesis:

There will be significant differences between the spiritual and non-spiritual groups on measures of thought control strategies in particular:

a) The non-spiritual group will show significant positive correlations between the LSHS and strategies including punishment, reappraisal, and worry which will not be evident in the non-spiritual group and

b) Despite reporting more hallucinatory experiences, the spiritual group will not show a correspondingly greater use of punishment, reappraisal, and worry strategies.
4.3.2.5 Relationships between LSHS and TCQ subscales

Pearson Product Moment was used to investigate the associations between the TCQ subscales and LSHS these are presented in Table 4.11. Consistent with the hypothesis only the non-spiritual group showed significant correlations between punishment, reappraisal and worry strategies. Examination of the effect sizes indicated that punishment (29 per cent), reappraisal (25 per cent) and worry (19 per cent) accounted for a moderate proportion of the variance in the hallucination scores (Clark-Carter, 2001).

Table 4.11. Correlations between LSHS and TCQ subscales in spiritual and non-spiritual groups: Pearson’s r

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Spiritual (N=28)</th>
<th>Non-spiritual (N=32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distraction</td>
<td>.04</td>
<td>.12</td>
</tr>
<tr>
<td>Punishment</td>
<td>-.23</td>
<td>.54**</td>
</tr>
<tr>
<td>Reappraisal</td>
<td>-.06</td>
<td>.50*</td>
</tr>
<tr>
<td>Worry</td>
<td>-.15</td>
<td>.44*</td>
</tr>
<tr>
<td>Social control</td>
<td>-.01</td>
<td>.29</td>
</tr>
<tr>
<td>STAI</td>
<td>.45*</td>
<td>.60**</td>
</tr>
</tbody>
</table>

*p<.05, **p<.01

A partial correlation using Pearson Product Moment with the STAI as covariate assessed the possible effect of trait anxiety on these relationships. The results of this analysis are shown in Table 4.12.
Table 4.12. Partial correlations between LSHS and TCQ sub-scales controlling for Trait anxiety in spiritual and non-spiritual groups: Partial Pearson’ r

<table>
<thead>
<tr>
<th>Subscales</th>
<th>Spiritual (28)</th>
<th>Non-spiritual (32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distraction</td>
<td>.12</td>
<td>-.12</td>
</tr>
<tr>
<td>Punishment</td>
<td>-.24</td>
<td>.38*</td>
</tr>
<tr>
<td>Reappraisal</td>
<td>-.01</td>
<td>.44*</td>
</tr>
<tr>
<td>Worry</td>
<td>-.06</td>
<td>.22</td>
</tr>
<tr>
<td>Social control</td>
<td>-.09</td>
<td>.36*</td>
</tr>
</tbody>
</table>

* p<.05, **p<.01

The analysis revealed that punishment and reappraisal strategies continued to show a significant relationship with the LSHS scale and these were of a moderate effect size (14 per cent and 19 per cent respectively). Social control also reached significance accounting for 14 per cent of the variance. However the relationship between LSHS and worry failed to reach significance although still showing a small, positive, association. In order to see if the differences in these correlations between the non-spiritual and spiritual groups were statistically significant a Fischer transformation was applied and the z-scores calculated. These showed that before anxiety was removed the non-spiritual group had significantly higher correlations between LSHS and punishment (z=2.91, p<.05), reappraisal (z=2.23, p<.05) and worry (z=2.05, p<.05) compared to the spiritual group. Following the partial correlation only the relationship between punishment and LSHS was significantly different across the spiritual and non-spiritual groups (z=2.20, p<.05). Further analysis of the items comprising the punishment scale also was undertaken. This was because the poor reliability of the scale (alpha=.35) meant it was more meaningful to examine the
relationship of individual items. As this was an unplanned comparison a more
stringent significance level of p<.01 was chosen to compensate for spurious findings.
A non-parametric analysis was conducted using Spearman’s rho between the items of
the punishment scale and the LSHS scores for the non-spiritual group. A positive
correlation was found between items six and the LSHS scale (Rho=.52, N=32,
p=.002). This item states “I punish myself for thinking the thought” (TCQ-Wells &
Davies, 1994).
4.3.2.6 Comparison of thought control strategies

A one-way ANOVA was used to test for differences in thought control strategies between the non-spiritual and spiritual groups. The means for each group on the TCQ subscales are displayed in Table 4.13. The analysis revealed that the spiritual group scored significantly higher on the distraction (F=13.0, 1,58,p<.05) and reappraisal (F=5.0, 1,58,p<.05) scales than the non-spiritual group.

Table 4.13. Mean (SD) TCQ subscale scores for spiritual and non-spiritual groups.

<table>
<thead>
<tr>
<th>Group (N)</th>
<th>TCQ</th>
<th>Spiritual (28)</th>
<th>Non-spiritual (32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distraction</td>
<td>17.8 (3.8)</td>
<td>14.6 (3.2)</td>
<td></td>
</tr>
<tr>
<td>Punishment</td>
<td>8.5 (1.6)</td>
<td>8.9 (1.9)</td>
<td></td>
</tr>
<tr>
<td>Reappraisal</td>
<td>15.1 (3.4)</td>
<td>13.1 (3.4)</td>
<td></td>
</tr>
<tr>
<td>Worry</td>
<td>8.5 (2.8)</td>
<td>9.6 (3.3)</td>
<td></td>
</tr>
<tr>
<td>Social control</td>
<td>12.8 (3.1)</td>
<td>12.0 (3.0)</td>
<td></td>
</tr>
</tbody>
</table>

Preliminary investigations were made for conducting a covariate analysis to control for possible effects of anxiety and age across the groups. These revealed significant interactions between the covariates and groups for punishment, distraction and worry subscales indicating that the analysis would be inappropriate (Tabachnick & Fidell, 1997). The analysis was therefore only conducted with reappraisal using age and anxiety as covariates. This revealed a significant effect for reappraisal (F=7.8,df=1,58,p<.05, Eta squared = .12). The estimated means for this scale is shown in Table 4.14.
Table 4.14. Estimated means for reappraisal strategy for spiritual and non-spiritual groups

<table>
<thead>
<tr>
<th>Group (N)</th>
<th>Subscale</th>
<th>Spiritual (28)</th>
<th>Non-spiritual (32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reappraisal</td>
<td></td>
<td>15.8</td>
<td>12.5</td>
</tr>
<tr>
<td>Social control</td>
<td></td>
<td>13.5</td>
<td>11.5</td>
</tr>
</tbody>
</table>

The differences between the groups on the items that composed the distraction and reappraisal scales were explored further using a Mann-Whitney test. The aim was to see if there were corresponding differences in the use of the individual strategies that comprised the scales. The mean and median for the significant items from each scale for the groups are shown in Table 4.15.

Table 4.15. Mean (median) scores for distraction and reappraisal items in spiritual and non-spiritual groups

<table>
<thead>
<tr>
<th>Group (N)</th>
<th>Subscale</th>
<th>Item</th>
<th>Spiritual (28)</th>
<th>Non-spiritual (32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distraction</td>
<td></td>
<td>1</td>
<td>3.3 (3.0)</td>
<td>2.5 (2.0)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>16</td>
<td>3.5(4.0)</td>
<td>2.4(2.0)</td>
</tr>
<tr>
<td>Reappraisal</td>
<td></td>
<td>14</td>
<td>3.2(3)</td>
<td>2.4(2)</td>
</tr>
</tbody>
</table>

The spiritual group rated item 1 \(U=213, z=-3.51, p<.05, N=60\) and item 16 \(U=146, z=-4.70, p<.05, N=60\) of the distraction scale more highly than the non-spiritual group. Similarly on the reappraisal scale item 14 \(U=252, z=-2.86, p<.05, N=60\) was also score more highly by the spiritual group.
5. Discussion

The findings from the current study are summarised in the following sections in relation to the main hypotheses and existing experimental evidence. These results are then interpreted according to Morrison’s metacognitive model and integrated with other models described in the introduction. The clinical implications and possible areas of further research are also explored. Finally the limitations of the current study are discussed in relation to the reliability and validity of measures used. This is particularly important as the study made comparisons between two groups and applied measures to previously untested populations.
5.1 Hypotheses testing (research question one)

Research question one referred to the role of spiritual beliefs in the relationship between hallucinations and metacognitive beliefs. This led to the following hypotheses.

Metacognitive beliefs about the about uncontrollability and self-consciousness are necessary in the development of hallucinations and in particular:

5.1.1 Hypothesis 1a

There will not be a significant difference between the spiritual and non-spiritual groups on correlations between hallucinations and metacognitive beliefs.

The current study was unique in applying measures of hallucinations and metacognitive beliefs to the spiritual group. In addition the correlational design differed from previous studies that compared mean scores on subscales of the MCQ of hallucinating and non-hallucinating patients (Baker & Morrison, 1998; Lobban, Haddock, Kinderman & Wells, 2002) or non-clinical groups (Morrison, Wells & Nothard, 2000). Consequently there were no studies available for direct comparison of correlations to see if they were in the expected range.

Comparisons between the spiritual and non-spiritual groups revealed that both had similar positive relationships between many metacognitive beliefs and predisposition to hallucination. In particular the significant association between self-consciousness and the LSHS was consistent with previous studies that had implicated this belief as a vulnerability factor (Morrison, Wells & Nothard, 2000). However the non-spiritual group also showed a significantly positive association between the LSHS and beliefs about uncontrollability, which was not observed in the spiritual group. The difference
between the groups on the relationship between uncontrollability was inconsistent with Morrison, Wells and Nothard (2000) who noted that individuals with a high predisposition to hallucination also reported greater beliefs about self-consciousness and uncontrollability. Similarly Baker and Morrison (1998) also reported elevated mean scores on uncontrollability in hallucinating patients when compared to a non-hallucinating patient group. Thus whilst the results from the non-spiritual group provided further evidence that beliefs about uncontrollability and self-consciousness could have an important function in the hallucinatory experience they also suggested beliefs about uncontrollability may not be critical in other populations. The spiritual and non-spiritual groups also showed significant associations between hallucination and trait anxiety (STAI). This was consistent with Morrison, Wells and Nothard (2002) who also found anxiety was a significant predictor of predisposition to hallucination. Consistent with their study the relationships between metacognitive beliefs and predisposition to hallucination remained even when anxiety was controlled. This provided further support for the view that metacognitive beliefs might had a direct role in the development and maintenance of hallucination. However these results contradicted Lobban, Haddock, Kinderman and Wells’s (2002) findings that the differences between hallucinating and non-hallucinating patient groups on the MCQ disappeared when anxiety was used as a covariate. A possible reason for these differences could be in the type of analyses conducted. The present study used a correlational analysis enabling the detection of relationships between the measures despite relatively small changes in scores. However it is conceivable that comparison of mean differences (across hallucinators and non-hallucinators) requires a more powerful design to reach statistical significance especially if changes in scores are
relatively small. This is possible, as the MCQ was developed to measure metacognitive beliefs relating to anxiety rather than hallucination. Thus it might be less sensitive to beliefs necessary in the development or maintenance of hallucination. The results from the analysis partially supported the hypothesis, as there were significant differences between the spiritual and non-spiritual groups on the relationships between measures of metacognitive beliefs (MCQ) and predisposition to hallucination (LSHS). Specifically the non-spiritual group showed a significant correlation between uncontrollability and predisposition to hallucination, which was not apparent in the spiritual group and which remained even when anxiety was statistically controlled.

5.1.2 Hypothesis 1b

The spiritual group will report greater predisposition to hallucinations corresponding to significantly greater beliefs about uncontrollability and self-consciousness.

The spiritual group reported greater predisposition to hallucination compared to the non-spiritual group even when age and anxiety were statistically controlled. This was consistent with previous studies that found positive beliefs towards unusual experiences were positively associated with predisposition to hallucination (Morrison, Wells & Nothard, 2000). Furthermore half of the spiritual group reported hearing a voice speaking their thoughts aloud (item 8 LSHS appendix 5) compared to 28 per cent of the controls. This experience has been quoted as a first rank symptom of schizophrenia. Morrison, Wells and Nothard (2000) noted that a quarter of the respondents in their study made a similar response.
These rates are much higher than those suggested by the epidemiological studies of Johns et al (2002) and Tien (1991). However they were more consistent with other studies examining a greater range of hallucinatory experiences (Posey & Losch, 1983; Barret & Etheridge, 1992). Launay and Slade (1981) also reported that over 30 per cent of their sample had reported similar experiences. The current study extended previous investigations of hallucination prevalence by using a group of individuals who not only reported positive beliefs about unusual experiences but also reported engaging in activities consistent with their beliefs.

Despite the greater predisposition to hallucination in the spiritual group there were no significant differences in metacognitive belief about uncontrollability and self-consciousness across the groups. Admittedly, the power of the analysis was low, a consequence of the sample size. This that meant although statistical significance was not reached a 'true' difference could still have, which the current study was unable to detect. The required sample size for a sufficiently powerful analysis based on the size of the observed differences was estimated to be 100 participants in each group. Nevertheless examination of the group means for the sub-scales of the MCQ indicated mixed support for the hypothesis. The spiritual group actually scored lower on uncontrollability than the non-spiritual group, which was in the opposite direction to the hypothesis. Finally the spiritual group also scored higher on the self-consciousness scale compared to the controls.

There were also additional differences between the groups on age and anxiety. Anxiety has been implicated as a possible confound in similar studies (Lobban, Haddock, Kinderman & Wells, 2002). However this could not be tested in the current study because the associations between the metacognitive beliefs and anxiety varied
significantly across the groups. The findings therefore provided some support for the hypothesis. Although the spiritual group reported greater predisposition to hallucination they did not hold more beliefs about uncontrollability and this was inconsistent with previous studies (Morrison, Wells & Nothard, 2000; Baker & Morrison, 1998). In support of the hypothesis the spiritual group reported greater beliefs about self-consciousness. This was consistent with previous studies that showed individuals who reported more hallucinatory experiences also scored higher on this scale (Morrison, Wells & Nothard, 2000; Baker & Morrison, 1998).
5.2 Hypotheses testing (research question two)

The second research question asked about the role of explanation in the relationship between hallucinations and thought control strategies. This led to the following hypothesis.

*The spiritual group by having a different explanation for hallucinations will use different thought control strategies to the non-spiritual group and in particular:*

5.2.1 Hypothesis 2a

*The non-spiritual group will show positive correlations between hallucinations and punishment, worry and reappraisal strategies that will be significantly different to the spiritual group.*

There was some support for the hypothesis as the non-spiritual group showed the expected correlations between the LSHS and the punishment, reappraisal and worry strategies of the TCQ. These results were comparable to Morrison, Wells and Nothard (2000) finding that individuals who were more predisposed to hallucinations also reported higher punishment and reappraisal thought control strategies. The observed pattern of strategies was also consistent with Morrison and Wells (2000) study, which used psychiatric groups. However only the association between the punishment and reappraisal strategies and the LSHS remained when anxiety was controlled in a partial correlation analysis. The association between worry and the LSHS no longer reached significance although the social control strategy did become significant.

There have not been previous studies that have controlled for anxiety in this manner although studies exploring the role of metacognitive beliefs have shown that anxiety could have a confounding effect (Lobban, Haddock, Kinderman & Wells, 2002). This
suggests that the use of worry was determined by anxiety levels rather than as a direct consequence of the hallucinatory experience, a conclusion similar to Lobban, Haddock, Kinderman and Wells (2002).

Nevertheless despite not achieving significance the partial correlation indicated that the worry strategy still accounted for a reasonable proportion of the variance of the LSHS. In addition the size of the correlations between punishment and reappraisal and hallucinations were lower which also suggested that anxiety could have a similar moderating effect on these variables. The spiritual group showed a markedly different pattern of correlations of which none reached statistical significance providing further support for the hypothesis. This contradicted the earlier studies (Morrison, Wells & Nothard, 2000; Morrison & Wells, 2000) and the results of the non-spiritual group. However only the difference in correlation between the punishment strategies was statistically significant although the spiritual group also showed very low correlations for the reappraisal and worry strategies. The absence of a significant statistically difference between the correlations could have been due to the size of the two samples. Further investigation of the punishment scale suggested that for the non-spiritual group predisposition to hallucinations was particularly associated with the strategy “I punish myself for thinking the thought” (Item 6, TCQ appendix 5) although this needs cautious interpretation, as the analysis was unplanned.

Thus in support of the hypothesis the non-spiritual group appeared to show a significantly different association between the punishment strategies and hallucination compared to the spiritual group. In addition the differences between reappraisal and social control subscales of the TCQ indicated a similar trend in the expected direction although they did not reach statistical significance.
5.2.2 Hypothesis 2b

Despite reporting more hallucinatory experiences the spiritual group will not show a correspondingly greater use of punishment, reappraisal and worry strategies.

There was mixed support for the hypothesis as the analyses revealed that the spiritual group used significantly more distraction strategies than the non-spiritual group. In addition the spiritual group also showed a trend to using more reappraisal and social control strategies. Consistent with the hypothesis there was no difference between the groups on punishment and worry strategies.

Since the TCQ was developed to measure thought control strategies in anxiety related disorders (Wells & Davies, 1994) it was important to consider if the observed results were simply due to differences between the groups on levels of anxiety. However only the reappraisal and social control strategies were amenable to a covariate analysis. This confirmed that the spiritual group used the reappraisal strategy more than the non-spiritual group.

The results showed some agreement with previous studies reporting an increased use of punishment, worry and reappraisal strategies were associated with predisposition to hallucination (Morrison, Wells & Nothard, 2002, Morrison & Wells, 2000). The current extended these by comparing spiritual and non-spiritual groups on these measures. However there were a number of considerations, which complicated the interpretation of these differences. Firstly the power of the analyses was low which suggested that a true difference might have existed despite the lack of statistical significance. Interpretation was further complicated by the differences in anxiety scores across the groups. Thus although the spiritual group reported a greater
predisposition to hallucination the differences between the groups on anxiety could have masked a corresponding increase in the use of punishment and worry strategies. Nevertheless there was evidence that the spiritual group used more distraction, reappraisal and social control strategies compared to the non-spiritual group. The analysis of the items that formed the distraction sub-scale showed that the spiritual group did not simply report an overall increase in all the items. Instead they tended to score items referring to strategies based on imagery (items 1 & 16, appendix 7) more highly rather than strategies involving distraction through physical activity. Similarly the spiritual group reported more use of the reappraisal strategy of approaching unpleasant experiences in a rational manner (item 14 TCQ appendix 7). Thus the spiritual group appeared to use significantly different thought control strategies to the non-spiritual group providing partial support for the hypothesis.

5.3 Summary of findings
The findings from the present study found some support for the first hypotheses. There was evidence that holding spiritual beliefs was associated with an increase in hallucinatory experiences. In addition there was further support for the first hypothesis as both the spiritual and non-spiritual group showed a significant correlation between the metacognitive beliefs about self-consciousness and predisposition to hallucination. However inconsistent with this hypothesis the spiritual and non-spiritual groups showed significantly different correlations between uncontrollability and hallucination. Thus only the non-spiritual group showed the expected associations between the metacognitive beliefs of uncontrollability and self-consciousness and predisposition to hallucination. These results remained even when
anxiety was statistically controlled although the strength of the associations was reduced by a small amount.

The study also found general support for the second hypothesis relating to thought control strategies. The spiritual group reported greater use of the distraction and reappraisal strategies compared to the non-spiritual group. Analyses showed that the spiritual group used more imagery based distraction strategies. In addition the non-spiritual group also showed the expected significant correlations between the punishment and reappraisal strategies and hallucination. In comparison the spiritual group did not show any correlations between thought control strategies and hallucinations and there was a significant difference in the size of the correlation between punishment and hallucination between the spiritual and non-spiritual group.
5.4 Theoretical integration

5.4.1 What is the role of spiritual beliefs in the relationship between hallucinations and metacognitive beliefs?

The results from the study suggested significant differences between the groups on metacognitive beliefs. The implications of these differences for the metacognitive model are discussed in the following sections.

5.4.1.1 Metacognitive beliefs about uncontrollability

Morrison, Haddock and Tarrier (1995) proposed that metacognitive beliefs about the danger of losing control of thoughts (uncontrollability and dangerousness) were necessary in the development of hallucinations. However the finding from the current study suggested that metacognitive beliefs about the uncontrollability of thoughts were not essential to the development of hallucinations for the spiritual group. This was supported by the data in two ways. Firstly the spiritual group clearly showed a greater tendency to experience hallucination yet did not show the expected increase in beliefs about uncontrollability. Additionally the spiritual group did not show the same correlation between the uncontrollability scale and the LSHS as was observed in the non-spiritual group.

This did not necessarily mean metacognitive beliefs were unimportant in the development of hallucinations. It is possible that beliefs (spiritual or otherwise) determine which metacognitive beliefs are likely to create dissonance in the manner suggested by Morrison, Haddock and Tarrier (1995). Thus metacognitive beliefs about controllability could be implicit to certain explanations (such as mental illness),
which could then lead to dissonance following an intrusive thought. However it is equally possible that other metacognitive beliefs could be implicit to spiritual beliefs leading to a similar consequence. For example metacognitive beliefs about responsibility and superstition could also lead to dissonance especially if the individual holds beliefs that make the dangers of superstition more potent (such as spiritual beliefs).

5.4.1.2 Metacognitive beliefs about self-consciousness

The importance of self-consciousness in hallucinations appeared to be supported by the results from the study. There was evidence that the spiritual group reported higher levels of beliefs about self-consciousness and this corresponded to a higher LSHS score. In addition both non-spiritual and spiritual groups showed significant relationships between self-consciousness the LSHS. This was consistent with Wells and Matthews (1994) suggestion that individuals prone to psychopathology were characterised by increased attention focused on internal processes. The self-consciousness scale could be a measure of the importance given to internally focused attention. In accordance with the metacognitive model of hallucination increased self-consciousness could be important in the development and maintenance of hallucinations in the form of increased vigilance for unusual experiences, which could be either externally attributed or reinforced.
5.4.1.3 Schizotypy

The apparent difference in associations between the spiritual and non-spiritual groups was also consistent with the factor analytic studies in schizotypy. Claridge et al (1996) reported a 'cognitive disorganisation factor with anxiety', which was distinct from the 'aberrant perceptions and beliefs', scale on which measures of hallucination loaded highly. They defined the 'cognitive disorganisation with anxiety' factor as corresponding to social anxiety and attentional difficulties. The study reported that scales such as the neuroticism scale loaded highly on this factor. Similarly, McCreery and Claridge (2002) also reported individuals who experienced hallucinations and scored highly on the 'aberrant perception' factor yet did not differ on the other factors. The 'uncontrollability' scale of the MCQ was correlated with measures of trait anxiety (Cartwright-Hatton & Wells, 1997) and could load on the 'cognitive disorganisation with anxiety' factor. Thus the finding that the spiritual group did not show a correlation between hallucination and beliefs about the dangers of worry could be comparable to factor studies of 'healthy' schizotypes.
5.4.2 What is the role of explanation in the use of thought control strategies in response to hallucinations?

The current study showed significant differences between the groups on the thought control strategies. The implications for the metacognitive model of hallucination are discussed below.

5.4.2.1 Distress

The metacognitive model (Morrison, 2001) suggested that the shift from normal experience to pathology occurred when a hallucinatory experience could not be accounted for by the individual’s knowledge or experience. At this point the individual experienced distress. Morrison (2001) also suggested that the markers of pathology were the use of specific thought control strategies including punishment, worry and reappraisal. The finding that the spiritual group did not show a greater tendency to hold these beliefs or show the same associations as the non-spiritual group despite having a greater predisposition to hallucination suggested their explanations could have had a role in mitigating such responses. This could occur because the spiritual group had a broader definition of what constitutes ‘normal’ experience making hallucinations less threatening. In addition spiritual beliefs could also be beneficial by providing an explanation for the experiences that does not threaten psychological integrity or consequences. In comparison individuals who hold beliefs that unusual experiences are indications of mental ill health might respond with attempts to control their thoughts because of these negative implications. This suggests that having access to spiritual beliefs may make an individual less likely to engage in counter-productive strategies that paradoxically increase the probability
of further intrusions. However this does not mean holding spiritual beliefs prevents distress, as shown by studies describing psychosis in those with spiritual beliefs (Jackson & Fulford, 1997; Greenberg, Witztum & Buchbinder, 1992).

One possible explanation is that different beliefs lead to the activation of different metacognitive beliefs. Thus beliefs about uncontrollability may only be threatening for individuals who believe losing control of thoughts is indicative of madness. In the case of individuals holding spiritual explanations other metacognitive beliefs might have been activated and which could lead to equally distressing outcomes.

The current study showed a trend for the spiritual group to have higher correlations between beliefs about competence and general negative beliefs. General negative beliefs relate to the need to control thoughts for fear of negative repercussions, which includes superstition and responsibility. This means believing that if a bad thought is not controlled then it could happen or the persons would feel responsible if it did happen. Thus activation of these beliefs could lead to distress in the same manner as non-spiritual groups and promote behaviours associated with psychosis. The important factor could be of feeling threatened by the experience (as suggested by Morrison, 2001), which then lead to attempts at control.

5.4.2.2 Anxiety

The study suggested that anxiety could have an indirect influence on hallucinatory experiences by increasing the use of worry strategies. This was because the worry strategy was not significantly correlated with hallucinations when anxiety was controlled. Such a finding supported Lobban et al (2002) suggestion that worry could increase anxiety-related intrusions, which could then be mistakenly attributed to an
The authors do not describe exactly how this could occur although it was speculated that excessive use of rumination could increase the vigilance for threats. Wells (2000) also seemed to suggest such a strategy in which an attempt to anticipate all possible threats could itself lead to intrusions although the mechanism was unclear. Another possibility was that individuals who scored high on anxiety scales already had strong beliefs relating to danger and their beliefs about needing to be in control or use of a punishment strategies might have been at a high level. An intrusion could result in distress because the individual was already ‘primed’ for threat.

5.4.3 Differences in thought control strategies

A somewhat surprising finding was that the spiritual group also reported using more distraction and reappraisal strategies. An attempt was made to understand these difference in the context of the metacognitive model and in particular the S-REF.

5.4.3.1 Distraction and reappraisal

The spiritual group appeared to use more imagery based distraction strategies and adopted a rational approach when reappraising experiences compared to the non-spiritual group. Although this finding was unexpected it was felt to be congruent with the S-REF model. Wells (2000) suggested that the role of distraction in anxiety reduction could be more complicated than simply ignoring an unpleasant stimulus. This form of distraction has short-term gains, by reducing existing arousal, but creates long-term difficulties since the beliefs remain unchallenged. In S-REF terms this means an individual would continue relying on the internal states thereby reinforcing
metacognitive beliefs related to the experience and perpetuating the use of the ineffective strategies. However Wells (2000) argued that distraction could be beneficial if it enables the individual to test these beliefs whilst sufficiently reducing arousal so that the experience could be tolerated. The use of imagery based distraction techniques could have a similar function (this is discussed further in the following section). Wells (2000) also suggested that adopting a reflective approach could be helpful. This is the basis of the reappraisal strategy, where the individual is aware of their difficulty but does not react in a catastrophic manner. This would seem consistent with the rational approach preferred by the spiritual group.
5.5 Clinical implications

The clinical implications of the findings from the current study need to be treated with caution given that the study employed a non-clinical group, however a number of findings within the study that have implications for clinical practice. These and areas for future investigation are discussed in the following sections.

5.5.1 Normalising rationales

The findings from the current study echo the normalising rationale described by Kingdon and Turkington (1994) and the ideas expressed by Romme and Escher (1989). These approaches adopted the position that hallucinations were normal experiences that did not necessarily indicate a catastrophic mental illness and that having an alternative explanation could mitigate distress. Morrison (2001) also suggested that an individual’s belief about the meaning of their experience, as a mental illness, was often more terrifying than the consequences of their hallucination. Thus having an alternative understanding for hallucinations could prevent distress in a manner similar to normalising rationales. Romme and Escher’s (1989) cycle of acceptance also expressed similar ideas. They described the stages of adjustment that followed the initial experience of a hallucination. They suggested that the transition to acceptance required the development of mastery over hallucinatory experiences and that explanations could play a crucial role by either facilitating or inhibiting this process. Helpful explanations enabled the individual to seek and use effective strategies whilst less helpful explanations were those that left the individual feeling they were powerless. Individuals within clinical services may be those who have been unable to reach this stage and are consequently in a permanent ‘startle’ phase.
5.5.2 Coping strategies

5.5.2.1 Distraction using imagery

The current study showed that the spiritual group preferred imagery based distraction strategies. This tallied with clinical evidence that imagery could have a role in psychological disorders. Hackmann, Clark and McManus (1997) reported the effective modification of persistent images using specific imagery related interventions. These included modifying the ending of an image, introducing humour or having the adult self establish control in the image. Wells (2000) also argued that imagery could have a useful function in therapy by providing a means to rehearse and tolerate feared situations. The finding then that the spiritual group used more distraction and specifically used more imagery strategies was consistent with the above themes. The process of generating positive images could have the dual function of reducing arousal and enabling the individual to exercise control over their cognitive processes. This could be particularly important if the fear was that control of mental processes had been lost (suggested by metacognitive beliefs about uncontrollability). Generating images could be a means to reduce the fear by demonstrating this control. This raises the possibility that becoming practised at such activities could be useful in challenging beliefs about control. This could be seen as the converse of trying to block or suppress intrusions, which perhaps also hold a similar goal. The use of distraction strategies to do with keeping busy could be less helpful in the experience of hallucinations as they could be avoidant without the opportunity to challenge these concerns.
5.5.2.2 Reappraisal

The spiritual group also reported more use of reappraisal. In particular they reported thinking about unpleasant thoughts rationally rather than trying to work them out or focusing on the thought. Wells (2000) suggested that reappraisal could have a protective role in general psychopathology through the development of mindfulness. This is described as a frame of mind where the individual is able to examine experiences without reacting to them in a way that prevents further exploration.

5.5.2.3 Differences between helpful and unhelpful strategies

Although the spiritual group reported more use of distraction and reappraisal strategies these were not correlated with the occurrence of hallucination. The non-spiritual group however showed a correlation between the reappraisal strategy and hallucination. This apparent difference could indicate a possible distinction between a helpful and unhelpful strategy. Strategies such as distraction and reappraisal could be unhelpful if they result in avoidance. Wells (2000) described how a distraction strategy could be helpful if it permitted exposure to a feared stimuli and unhelpful if it enabled avoidance. A similar argument could be presented for reappraisal. Thus a reappraisal strategy could be avoidant in a similar manner if the individual by ruminating over an experience avoids other more feared conditions. This is comparable to the argument made by Wells (2000) of worry about worry where the individual uses worrying as a way of avoiding other problems. However the fact that the spiritual group used more reappraisal yet did not show a correlation between this strategy and hallucination suggests a difference between a maintaining factor and a useful strategy. A helpful behaviour could be one that does not correlate with the
frequency of an aversive experience. This could be because rather than relieving the distress helpful strategies may function more broadly by enabling other actions to be considered in a manner consistent with mindfulness (Wells, 2000)
5.6 Criticisms of methodology

5.6.1 Generalisability

The study applied a number of measures to new populations and there was a need to determine the extent to which results could be generalised. The issues relating to generalisability are discussed in the following sections.

5.6.1.1 Age, anxiety and gender

The population statistics showed that there were significant differences between the two groups on age and anxiety with the spiritual group tending to be significantly older and reporting less anxiety than the non-spiritual group. These patterns were consistent with the available norms for the STAI, which suggested that anxiety scores decreased with age (Spielberger, 1983). However this meant the effect of the interaction of age and anxiety could have been an important factor in the differences across the groups on other measures. In addition there were no studies documenting the age and anxiety of spiritual groups making it impossible to see if the sample were representative of the population.

The greater proportion of female respondents was consistent with proportions of female mediums from which the sample was drawn. However this did limit generalisability and the inferences that could be drawn about male respondents.
5.6.1.2 Sampling error

The samples from each group were self-selected and it was not possible to know from this study if the individuals who responded actually represented the groups they were drawn from. For this reason generalisations about the populations had to be made cautiously although this was less of a problem for the non-spiritual group as there were well-established norms for many of the questionnaires. However for the spiritual group the possibility that respondents were significantly different to non-respondents remained. Interestingly the mediums showed the highest rate of response, which could indicate the need for this group to be acknowledged as a serious organisation. A number of respondents from this group indicated that they felt the study was important for them as a group in order to be recognised outside of the spiritual organisation. The difficulties in recruiting from these groups' meant it is difficult to consider how sampling error could be reduced whilst ensuring an adequate response rate.

5.6.1.3 Response bias

Demand characteristics were an implicit source of error in the study, influencing the type of responses given. For the spiritual group there might have been a need to present a positive impression for fear of judgement by a sceptical audience. Such responses could have been to exaggerate spiritual experiences whilst minimising any pathology. In contrast those with actual pathology might have refused to participate in the study. This did not mean that the spiritual group was reporting falsely but that the current study was unable to distinguish between true and biased responses. Future work would need to include a measure of defensiveness (such as the K-scale of the
MMPI, Hathaway & McKlinley, 1989) or include a 'lie' scale on the LSHS, TCQ and MCQ scales. However, although the spiritual group did report the lowest levels of anxiety there were no differences on their scores on the metacognitive beliefs, which suggests they were responding in a similar manner to the non-spiritual group.

5.6.2 Questionnaire design and administration

5.6.2.1 Order of presentation

There may have been unknown consequences of completing the questionnaires in a certain order and this possibility could not explored in the current study. Counterbalancing was not an option as individuals were completing questionnaires in their own time.

5.6.2.2 Drug use

Asking respondents to judge whether their experiences were the result of drug use checked the possibility of drug use being responsible for hallucinatory experiences. All of the participants responded negatively to this item however the reliability of the item was unknown. There could be value in adopting a more stringent measure, perhaps by asking about specific drugs (including medication) and alcohol use and excluding individuals who do reported use above a predetermined level.

5.6.2.3 Mental health difficulties

The mental health status of the respondents was not explored in this study and this has obvious implications. The presence of significant mental health conditions might have skewed group means and subsequent correlations. Future studies would need to
account for this to improve matching. However this issue was not pursued in the
current study since it might have had a detrimental effect on response rates,
particularly with spiritual groups who already considered the questionnaire as being
pathologising. It was also thought that the number of questionnaires placed sufficient
burden on respondents without the addition of more questions relating to mental
health. Future studies could use questionnaires such as the SCL-90-R (Derogatis,
1983) or the General Health Questionnaire (GHQ Goldberg, 1972) and only include
participants who were at the sub-clinical level. In addition the use of the Hospital
Anxiety and Depression rating scale (HADS Zigmond & Snaith, 1983) could replace
the STAI because it is much shorter and could provide an additional measure of
psychological morbidity (i.e. depression).

5.6.3 Application of measures to new populations

5.6.3.1 Reliability of measures
The reliability analysis of the LSHS, MCQ and TCQ sub scales were within the
acceptable range for the non-spiritual and spiritual groups. The exception was the
punishment scale on the TCQ. Here both non-spiritual and spiritual group showed low
reliability. The reason for these discrepancies in the reliability was unknown. One
reason could be that the scales were not measuring a unitary construct. This was
possible as the MCQ and TCQ were developed using a factor analytic method on a
general population. This means it was possible that other populations could show a
different pattern of responding by perhaps showing a preference for a particular
experience, belief or strategy. However it was equally possible that this reflected a
bias in the sample, for example a certain ‘type’ of individual might have responded to
the study. The implication of these possibilities for the current study was that the
meaning of terms such as punishment strategy was unclear and generalisability
consequently restricted.

5.6.3.2 Metacognitive belief questionnaire

The scores of all the groups on the metacognitive questionnaire were within a similar
non-clinical range for all the groups (Cartwright-Hatton & Wells, 1997). This was
unsurprising, as this was a non-clinical sample. However an examination of the
correlations between the five sub-scales of the MCQ and anxiety revealed very
different associations in the spiritual group compared to the non-spiritual group. Since
the MCQ had not been applied to the spiritual population before it was not possible to
speculate about the significance of the associations with anxiety. One reason could be
the age of the groups in the studies. Cartwright-Hatton and Wells (1997) drew their
sample from a student population with a mean age of 25 years, which was
significantly younger than those in the current study were. There are no studies
documenting the relationship between age and metacognitive beliefs and it was not
clear if there should be any association. However since anxiety showed a small
negative association with age (Spielberger, 1983) and the metacognitive belief scales
were intended to measure beliefs relating to anxiety (Wells, 2000) there could also be
a relationship between age and metacognitive beliefs. The significance of this was in
determining the possible confounding effects of age and anxiety across the groups on
the MCQ and TCQ. A possible interaction between these variables could present
difficulties in interpretation and rules out a covariate analysis. This is because it
would not be to isolate the variation if an interaction existed between the covariate and the groups. Future studies would need to ensure matching between anxiety across groups. Alternatively anxiety could be used as an independent variable by grouping respondents according to high and low anxiety scores (Tabachnick & Fiddel, 1996). However this would mean a far greater number of participants would be required to meet the assumptions of statistical analyses.

5.6.3.3 Thought Control questionnaire

The mean scores from all the groups on the thought control questionnaire were in the expected range for a non-clinical sample (TCQ, Wells & Davies, 1994). The associations between the sub-scales of the TCQ and anxiety were also in the expected range for the non-spiritual group. However the spiritual group showed significant departure. There have not been any studies investigating the application of the TCQ to these populations so in a similar fashion to the MCQ it was not possible to speculate if this pattern was in the expected range.

5.6.3.4 Use of hallucination scale with spiritual groups

The use of the hallucination scale with the spiritual group presented particular difficulties in the language used and the implied meaning of the questions. A number of respondents from the spiritual group indicated on their responses that they disagreed with certain questions. These included items asking about daydreams and seeing things that are not there or were unreal. The comments indicated that they believed something was always there or that they did not daydream and these were
actual states. These responses were not made in the pilot study and demonstrated that despite grouping individuals together according to a shared belief there was still heterogeneity. Future work would require some means to change the language of the scale to reduce possible confusion and make the items more acceptable to individuals with very different beliefs. Participants also reported that they felt items were pathologising of their experiences. This was despite the information sheet (appendix 2) stating that the questionnaire was not a measure of mediumistic ability or of spiritual experience. Thus there is clearly a need to further clarify these issues in any future work. This could be achieved by working with spiritualists and other groups to develop a scale that captures their experiences whilst retaining psychometric validity necessary for research.
5.7 Future work

There is a need to replicate the current study with an improved design to meet some of the methodological concerns that have been identified. Particular areas of concern were the small sample size, differences between groups on age and anxiety and reliability of measures. The following section discusses some recommendations for a future study.

An increase in sample size could be achieved by simply recruiting more participants for all the groups. However there were limitations to the number of mediums that were available even at a national level. An alternative design could be to make comparisons between helpful and unhelpful explanations, which could include spiritual beliefs and other explanations such as parapsychological.

The differences between the groups on age could be relatively easily managed by recruiting from appropriate sites. However differences in anxiety would be more difficult to control. One option would be to use anxiety scores as a grouping variable (by dividing respondents into high and low groups) although this requires more participants. There were concerns about the reliability of measures and possible biases in responding. These are difficult to reduce but the use of lie scales or the K scale of the MMPI (Hathaway & McKlinley, 1989) as a measure of defensiveness in responses could be applied. Additional measures such as the SCL-90-R (Derogatis, 1983) or General Health Questionnaire (GHQ) might be appropriately used to screen for mental health difficulties that could confound results. In addition a shorter measure of anxiety such as the HADS (Zigmond & Snaith, 1983) could also be used. This would also provide an additional measure of depression, which could be used to screen participants.
The studies reporting the 'healthy' schizotypes also raised interesting questions in view of the current study. These studies suggested that experiences such as hallucinations could dissociate from the negative features, including anxiety. Moreover, it would be interesting to see if this dissociation was reflected in the adoption of different metacognitive beliefs and thought control strategies.

The relationship between metacognitive beliefs, hallucinatory experiences and distress was also felt to require further investigation. The assumption in the study was that the relationship was rectilinear. However it was possible that other relationships could exist. For example the use of thought control strategies could increase gradually with hallucination frequency until a critical point beyond which there could be a more rapid acceleration. Similarly individuals might report much higher levels of metacognitive beliefs when first having a hallucinatory experience than at later stages. These could be explored further by comparing metacognitive beliefs of individuals who were at an early stage of hallucinatory experiences to those who had had such experiences for a longer time or the same individuals at different stages.

There was some concern that differences between groups could be lost due to the lack of sensitivity in the measures used. Future studies could also attempt to determine which items from the metacognitive beliefs and thought control questionnaires were particularly relevant to hallucinations.

There was an inherent danger in this type of research of pathologising the beliefs and experience of the participant population. This was a constant tension within the current study and it was the researcher's opinion that future work would need to address this more fully. This was most evident in the language used to describe experiences and the assumption that they were hallucinatory and therefore not real.
This presents an ethical dilemma between conducting useful research and the potential harm of denying or pathologising another’s experience. A possible solution to this could be to develop a scale with the help of these groups that incorporate the richness of their experiences whilst also providing a psychometrically valid tool.

5.8 Conclusions

The current study found significant differences between spiritual and non-spiritual groups on the associations between metacognitive beliefs, thought control strategies and predisposition to hallucination. These findings were cautiously interpreted, as there were concerns about the reliability and validity of the results.

The study also provided a possible link between clinical and non-clinical experiences of hallucinations and demonstrated how a metacognitive model could be used to understand them. There was also support for the use of non-clinical populations in testing hypotheses drawn from clinical observations. A number of methodological issues were identified that would need to be managed in future work, particularly in the measures used, the controls needed for valid comparisons and ethical concerns.

Finally based on the results of the study cautious suggestions were made for clinical work and areas for further investigation.
6. References


7. Appendixes

Appendix 1

Ethical approval
Dear Jatin

Re: Comparison of metacognitive beliefs and thought control strategies in a spiritual and non-spiritual population

Please find enclosed a copy of correspondence from the Leicestershire Local Research Ethics Committee (Committee One), confirming that following the submission of your amended documentation the project has received formal ethical approval.

Under the Research Governance Policy of the Trust, confirmation of appropriate ethical approval is a necessary prerequisite for obtaining Trust Management Approval. I am happy to confirm therefore that Leicestershire Partnership NHS Trust formally approves the study to proceed, subject to the following conditions:

- You abide by the conditions imposed by the LREC
- All correspondence with the LREC is routed through the Trust Research Office (including the obligatory progress/final report as detailed).
- The agreed protocol is adhered to.
- A summary of any findings is reported to the Trust/Clinical Service/Participants at the conclusion of the study.
- Any changes in the protocol, timescale etc. are notified to the R&D Office
- At the conclusion of the study, a final report form is completed.
- A copy of any subsequent publication is lodged with the Trust.
- That paperwork related to the study may be subject to audit at any time.

This letter also serves as confirmation that as Principal Investigator you are covered by the terms of the Trust’s research indemnity for the duration of the project.

With my best wishes on the success of your study.

Regards.

[Signature]

Dr. Dave Clarke
[R&D Manager]
Appendix 2

Information sheet

I would like to invite you to take part in the study described below. I have also tried to answer some questions that you might have about the study.

Title of Study:

Comparison of metacognitive beliefs and thought control strategies in a spiritual and non-spiritual population.

Principal investigator:

The principal researcher is Jatin Pattni Trainee Clinical Psychologist.

You may contact Jatin Pattni at the University of Leicester. Telephone number 0116 223 1648. You can also contact Jatin Pattni using email onjp82@leicester.ac.uk.

1. What is the purpose of the study?

This study aims to explore the relationship between beliefs, experiences and levels of stress.

2. What will be involved if I take part in the study?

The study requires you to complete questionnaires about your beliefs, personal experiences and levels of stress. The questionnaire pack will take 25-30 minutes to complete.

3. Will information obtained in the study be confidential?

No identifying information will be collected; all questionnaires will be
completed anonymously. All raw data, in form of questionnaires will be kept under lock and key. All data entered onto computer files will be password protected with access restricted to the primary researcher only. This in accordance to the Data Protection Act.

4. What if I am harmed by the study?

*Medical research is covered for mishaps in the same way as for patients undergoing treatment in the NHS i.e. compensation is only available if negligence occurs.*

5. What happens if I do not wish to participate in this study or wish to withdraw from the study?

If you do not wish to participate in this study or if you wish to withdraw from the study you may do so without justifying your decision and your future treatment will not be affected.
Appendix 3

Consent Form

*Study to explore metacognitive beliefs and thought control strategies in a spiritual and non-spiritual population*

*Principal researcher Jatin Pattni Trainee Clinical Psychologist*

*This form should be read in conjunction with the Information Leaflet*

I agree to take part in the above study as described in the Information Sheet.

I understand that I may withdraw from the study at any time.

I understand medical research is covered for mishaps in the same way as for patients undergoing treatment in the NHS i.e. compensation is only available if negligence occurs.

I have read the participant information leaflet on the above study and have had the opportunity to discuss the details with Jatin Pattni and ask any questions. The nature and the purpose of the tests to be undertaken have been explained to me and I understand what will be required if I take part in the study.

Signature ........................................................................ Date ........................................

(Name in BLOCK LETTERS) ............................................................................................................

I confirm I have explained the nature of the Trial, as detailed in the Information Sheet, in terms which in my judgement are suited to the understanding of the participant.

Signature of Investigator ........................................................................ Date ........................................

(Name in BLOCK LETTERS) ............................................................................................................
Appendix 4

Instructions for Questionnaires

Please read before starting the questionnaires.

LSHS questionnaire

This scale allows us to measure the occurrence of unusual experiences.

Some of the questions need to be interpreted with a little flexibility in order to make sense to people with different beliefs.

These are clarified below:

Q 5 and 6 - Daydreams, this refers to regular daydreams and not those that involve entering a ‘trance’ state.

The TCQ and MCQ

These questionnaires are to be answered from a general perspective. They are not about strategies that may be applied in specific situations but refer to your general approach.
Appendix 5

LSHS- Adapted Version (Morrison, Wells & Nothard, 2000)

Please read the following questions then indicate how often you have experienced the type of experience described by circling the appropriate number.

E.g. If you experience question 1 almost always then circle 4 under question 1

1. My thoughts seem as real as actual events in my life
   1- Never 2- sometimes 3- often 4- almost always

2. No matter how much I try to concentrate on my work unrelated thoughts always creep into my mind
   1- Never 2- sometimes 3- often 4- almost always

3. I have had the experience of hearing a person’s voice and then found that there was no one there
   1- Never 2- sometimes 3- often 4- almost always

4. The sounds I hear in my daydreams are generally clear and distinct
   1- Never 2- sometimes 3- often 4- almost always

5. The people in my daydreams seem so true to life that I think they are real.
   1- Never 2- sometimes 3- often 4- almost always

6. In my daydreams I can hear the sound of a tune almost as clearly as if I were actually listening to it
   1- Never 2- sometimes 3- often 4- almost always

7. I hear a voice speaking my thoughts aloud
   1- Never 2- sometimes 3- often 4- almost always

8. I have been troubled by hearing voices in my head
   1- Never 2- sometimes 3- often 4- almost always
9. I have seen a person’s face in front of me when no one was there
   1- Never  2- sometimes  3- often  4- almost always

10. When I look at things they appear strange to me
   1- Never  2- sometimes  3- often  4- almost always

11. I see shadows and shapes when there is nothing there
   1- Never  2- sometimes  3- often  4- almost always

12. When I look at things they look unreal to me
   1- Never  2- sometimes  3- often  4- almost always

13. When I look at myself in the mirror I look different
   1- Never  2- sometimes  3- often  4- almost always
Appendix 6  METACOGNITIONS QUESTIONNAIRE
This questionnaire is concerned with beliefs people have about their thinking. Listed below are a number of beliefs that people have expressed. Please read each item and say how much you generally agree with it by circling the appropriate number. Please respond to all the items, there are no right or wrong answers.

<table>
<thead>
<tr>
<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. 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. My worrying is dangerous for me</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. I have difficulty knowing if I have actually done something, of just imagined it</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. I think a lot about my thoughts</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. I could make myself sick with worrying</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. 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>7. If I did not control a worrying thought, and then it happened, it would seem like my fault</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. If I let my worrying thoughts get out of control, they will end up controlling me</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. I need to worry in order to remain organised</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10. 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>11. 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>
<tr>
<td>12. Worrying helps me to get things sorted out in my mind</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13. I cannot ignore my worrying thoughts</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Statement</td>
<td>Do not agree</td>
<td>Agree slightly</td>
<td>Agree moderately</td>
<td>Agree very much</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>--------------</td>
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<td>------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>14. I monitor my thoughts</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15. I should be in control of my thoughts all of the time</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16. My memory can mislead me at times</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>17. I could be punished for not having certain thoughts</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>18. My worrying could make me go mad</td>
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<tr>
<td>19. If I do not stop worrying thoughts, they could come true</td>
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<td>20. I rarely question my thoughts</td>
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<tr>
<td>21. Worrying puts my body under a lot of stress</td>
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<tr>
<td>22. Worrying helps me avoid disastrous situations</td>
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<tr>
<td>23. I am constantly aware of my thinking</td>
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<td>24. I have a poor memory</td>
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<td>25. I pay close attention to the way my mind works</td>
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<tr>
<td>26. People who do not worry, have no depth</td>
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<tr>
<td>27. Worrying helps me cope</td>
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<tr>
<td>28. I imagine having not done something and then doubt my memory for doing them</td>
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<tr>
<td>29. Not being able to control my thoughts is a sign of weakness</td>
<td>1</td>
<td>2</td>
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<tr>
<td>30. If I did not worry, I would make more mistakes</td>
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<tr>
<td>31. I find it difficult to control my thoughts</td>
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</tr>
<tr>
<td>Statement</td>
<td>Do not agree</td>
<td>Agree slightly</td>
<td>Agree moderately</td>
<td>Agree very much</td>
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<td>--------------------------------------------------------------------------</td>
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<tr>
<td>32. Worrying is a sign of a good person</td>
<td>1</td>
<td>2</td>
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<td>4</td>
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<tr>
<td>33. Worrying thoughts enter my head against my will</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>34. If I could not control my thoughts I would go crazy</td>
<td>1</td>
<td>2</td>
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<tr>
<td>35. I will lose out in life if I do not worry</td>
<td>1</td>
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<tr>
<td>36. When I start worrying, I cannot stop</td>
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<tr>
<td>37. Some thoughts will always need to be controlled</td>
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<td>38. I need to worry, in order to get things done</td>
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<td>2</td>
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<tr>
<td>39. I will be punished for not controlling certain thoughts</td>
<td>1</td>
<td>2</td>
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<tr>
<td>40. My thoughts interfere with my concentration</td>
<td>1</td>
<td>2</td>
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<tr>
<td>41. It is alright to let my thoughts roam free</td>
<td>1</td>
<td>2</td>
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<td>4</td>
</tr>
<tr>
<td>42. I worry about my thoughts</td>
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<td>2</td>
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<td>4</td>
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<tr>
<td>43. I am easily distracted</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>44. My worrying thoughts are not productive</td>
<td>1</td>
<td>2</td>
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<tr>
<td>45. Worry can stop me from seeing a situation clearly</td>
<td>1</td>
<td>2</td>
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<tr>
<td>46. Worrying helps me to solve problems</td>
<td>1</td>
<td>2</td>
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<tr>
<td>47. I have little confidence in my memory for places</td>
<td>1</td>
<td>2</td>
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<tr>
<td>48. My worrying thoughts are uncontrollable</td>
<td>1</td>
<td>2</td>
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<tr>
<td>49. It is bad to think certain thoughts</td>
<td>1</td>
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<tr>
<td>Statement</td>
<td>Do not agree</td>
<td>Agree slightly</td>
<td>Agree moderately</td>
<td>Agree very much</td>
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<tr>
<td>50. If I do not control my thoughts, I may end up embarrassing myself</td>
<td>1</td>
<td>2</td>
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<tr>
<td>51. I do not trust my memory</td>
<td>1</td>
<td>2</td>
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<tr>
<td>52. I do my clearest thinking when I am worrying</td>
<td>1</td>
<td>2</td>
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<tr>
<td>53. My worrying thoughts appear automatically</td>
<td>1</td>
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<tr>
<td>54. I would be selfish if I never worried</td>
<td>1</td>
<td>2</td>
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<tr>
<td>55. If I could not control my thoughts, I would not be able to function</td>
<td>1</td>
<td>2</td>
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</tr>
<tr>
<td>56. I need to worry, in order to work well</td>
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<td>2</td>
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</tr>
<tr>
<td>57. I have little confidence in my memory for actions</td>
<td>1</td>
<td>2</td>
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<td>4</td>
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<tr>
<td>58. I have difficulty keeping my mind focused on one thing for a long time</td>
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<td>2</td>
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<tr>
<td>59. If a bad thing happens which I have not worried about, I feel responsible</td>
<td>1</td>
<td>2</td>
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<tr>
<td>60. It would not be normal, if I did not worry</td>
<td>1</td>
<td>2</td>
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<tr>
<td>61. I constantly examine my thoughts</td>
<td>1</td>
<td>2</td>
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<tr>
<td>62. If I stopped worrying, I would become glib, arrogant and offensive</td>
<td>1</td>
<td>2</td>
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</tr>
<tr>
<td>63. Worrying helps me to plan the future more effectively</td>
<td>1</td>
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</tr>
<tr>
<td>64. I would be a stronger person if I could worry less</td>
<td>1</td>
<td>2</td>
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</tr>
<tr>
<td>65. I would be stupid and complacent not to worry</td>
<td>1</td>
<td>2</td>
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</tbody>
</table>

Please ensure you have responded to all items. Thank you.
Appendix 7

THOUGHT CONTROL QUESTIONNAIRE

Developed by Wells and Davies (1994)

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>
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</thead>
<tbody>
<tr>
<td>1. I call to mind positive images instead</td>
<td>1</td>
<td>2</td>
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<tr>
<td>2. I tell myself not to be so stupid</td>
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<td>3. I focus on the thought</td>
<td>1</td>
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<tr>
<td>4. I replace the thought with a more trivial bad thought</td>
<td>1</td>
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<tr>
<td>5. I don’t talk about the thought to anyone</td>
<td>1</td>
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<tr>
<td>6. I punish myself for thinking the thought</td>
<td>1</td>
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<tr>
<td>7. I dwell on other worries</td>
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<td>8. I keep the thought to myself</td>
<td>1</td>
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<tr>
<td>9. I occupy myself with work instead</td>
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<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Number</td>
<td>Description</td>
<td>Never</td>
<td>Sometimes</td>
<td>Often</td>
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<tr>
<td>10.1</td>
<td>Challenge the thought's validity</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>11.1</td>
<td>Get angry at myself for having the thought</td>
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<td>2</td>
<td>3</td>
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<tr>
<td>12.1</td>
<td>Avoid discussing the thought</td>
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<td>2</td>
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<tr>
<td>13.1</td>
<td>Shout at myself for having the thought</td>
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<td>2</td>
<td>3</td>
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<tr>
<td>14.1</td>
<td>Analyse the thought rationally</td>
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<tr>
<td>15.1</td>
<td>Slap or pinch myself to stop the thought</td>
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<tr>
<td>16.1</td>
<td>Think pleasant thoughts instead</td>
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<tr>
<td>17.1</td>
<td>Find out how my friends deal with these thoughts</td>
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<td>18.1</td>
<td>Think about more minor things instead</td>
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<td>19.1</td>
<td>Do something that I enjoy</td>
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<td>20.1</td>
<td>Try to reinterpret the thought</td>
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<tr>
<td>21.1</td>
<td>Think about something else</td>
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<td>2</td>
<td>3</td>
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<tr>
<td>22.1</td>
<td>Think about the more minor problems I have</td>
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<tr>
<td>23.1</td>
<td>Try a different way of thinking about it</td>
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</tbody>
</table>
24. I think about past worries instead
25. I ask my friends if they have similar thoughts
26. I focus on different negative thoughts
27. I question the reasons for having the thought
28. I tell myself something bad will happen if I think the thought
29. I talk to a friend about the thought
30. I keep myself busy

<table>
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<tr>
<th>Item</th>
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<th>Often</th>
<th>Almost always</th>
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<td>28.</td>
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<tr>
<td>29.</td>
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<td>30.</td>
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Please check that you have responded to all of the items. Thank you.
Appendix 8

State-Trait Anxiety Inventory (Spielberger, 1983)
SELF-EVALUATION QUESTIONNAIRE

Please provide the following information:

Name__________________________________________Date__________S______

Age__________________________________Gender (Circle) M F T____

DIRECTIONS:

The number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate value to the right of the statement to indicate how you feel right now, that is, at this moment. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

1. I feel calm ...............................................................
2. I feel secure ...........................................................
3. I am tense ............................................................
4. I feel strained .......................................................-
5. I feel at ease ...........................................................
6. I feel upset ............................................................
7. I am presently worrying over possible misfortunes...
8. I feel satisfied .......................................................-
9. I feel frightened ....................................................
10. I feel comfortable ...............................................-
11. I feel self-confident ...............................................
12. I feel nervous .....................................................
13. I am jittery ...........................................................
14. I feel indecisive ...................................................
15. I am relaxed .......................................................-
16. I feel content ......................................................
17. I am worried .......................................................-
18. I feel confused ...................................................
19. I feel steady .......................................................-
20. I feel pleasant .......................................................

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Appendix 9

Autobiographical and Belief Questionnaire

Please answer the following questions

1. Age ____________  2. Current occupation ____________

3. Male or Female (circle as appropriate)

4. I am interested in peoples understanding of unusual perceptual experiences. These are the types of experiences described in the LSHS questionnaire. Do you believe that you have experienced any of the events described in questionnaire 3 as a consequence of drug or alcohol use?

   YES  NO (Circle as appropriate)

5. I am also interested in people’s belief systems in general. Spiritualism is defined as:

   “A specific set of beliefs, which is distinct from being spiritual. Spiritualism is a complex philosophy, which is difficult to define in a single sentence. However spiritualists hold beliefs that it is possible for spirits to communicate with people and that some people may be more sensitive to this than others”.

   Bearing in mind the above description do you consider yourself to be a spiritualist? YES NO (Circle as appropriate)

6. How often do you take part in spiritualist actives (i.e. attending a spiritualist church)? More than once a week/ once a week/ than once a week / never (Circle as appropriate)

7. How often do you use the ideas and beliefs from spiritualism to help you understand events in your life?

   Never -----------------------------------------------All the time
   Please mark with an X along the line to indicate your answer.