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The Impact of Spirituality and Trauma on Appraisals of Psychotic-Like Experiences

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THE IMPACT OF SPIRITUALITY AND TRAUMA ON APPRAISALS OF PSYCHOTIC-LIKE EXPERIENCES

By

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ABSTRACT

The Impact of Spirituality and Trauma on Appraisals of Psychotic-Like Experiences

By: Kathleen S. Isaac

Advisor: Deidre Anglin, Ph.D.

Background: A substantial portion of the general population (2.5% to 31.4% internationally) reports psychotic-like experiences, which are paranormal, psychic or bizarre perceptual experiences such as voice hearing, or holding strong beliefs (i.e. superstitions) that are neither experienced as pathological nor indicative of a psychotic disorder. Cognitive models of psychosis suggest that the cognitive appraisal (i.e. personal interpretation) of the experience may help distinguish non-clinical psychotic-like experiences from clinical psychotic symptoms. This dissertation attempted to add to cognitive models by assessing whether cultural and personal factors such as spirituality and trauma inform the appraisals of anomalous experiences. This study used a moderated-mediation model to explore associations between degree of spirituality, appraisals of anomalous experiences, and trauma. This dissertation tested the hypothesis that spirituality informs the content, valence, and emotional valence attributed to psychotic experiences among individuals who endorse such experiences. Trauma was suggested as a moderator of the relationship between spirituality and the valence of appraisals. High spirituality was expected to be associated with positive spiritual appraisals and positive emotional responses, while a history of trauma was expected to modify the relationship between appraisals and valence, such that high spirituality was expected be associated with negative spiritual appraisals and negative emotional responses in the context of a trauma history. **Method:** In this mixed-methods study, 29

undergraduate students enrolled at the City College of New York who endorsed lifetime anomalous experiences, completed self-report measures assessing psychotic symptoms, appraisal style, spirituality and trauma history. Participants were also interviewed to assess anomalous experiences, their appraisals and their spiritual history. Hypotheses were tested by conducting bivariate correlational analyses to test associations between level of spirituality, number of traumatic events, psychotic symptoms and appraisals of experiences. A qualitative analysis of appraisals of lifetime anomalous experiences was also conducted to test the hypotheses. **Results:** Overall, participants were more likely to have mixed emotional reactions to their experience, regardless of whether they appraised the experience as positive or negative. Spiritual appraisals were made across all spiritual identity categories. Spiritual individuals were more likely to make negative appraisals. Family spirituality was found to have a significant influence over spiritual appraisals. Distressing psychotic symptoms were positively associated with the number of traumatic events, negative appraisal style and negative emotional responses. The majority of the sample (86%) reported a history of trauma. The moderation effect therefore could not be tested, but this may also explain why spiritual appraisals were positively associated with negative religious coping in this highly traumatized sample. Emotional distress was a significant situational context for the onset of anomalous experiences. **Conclusion:** Specific aspects of spirituality, such as religious coping and family spirituality should be incorporated into cognitive models of psychosis, as they inform the nature of appraisals of anomalous experiences. The situational context and the type of experience should also be considered as factors that inform the nature of appraisals. Future studies should

compare clinical and non-clinical samples to explore the nature of appraisals and emotional responses among individuals who report psychotic experiences.

Key words: Spirituality, Psychosis, Trauma, Appraisals, Cognition

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"To EVERY thing there is a season, and a time to every purpose under heaven…He hath made everything beautiful in his time: also he hath set the world in their heart, so that no man can find out the work that God maketh from the beginning to the end."

–Ecclesiastes 3:1 &11 (KJV)

Depuis ou gen Bon Dieu nan vie ou, toute va marche! All honor and glory goes to God, who has kept me throughout this journey. Without my faith, I wouldn't have been able to overcome all that I have to make it to this point in my life. Thank you Lord for guiding me, challenging me and showing me that I can do anything as long as I continue to keep my focus on you. I am grateful for the opportunity to honor you through studying spirituality, which is a testament to your continued influence over my life. Let your light continue to shine through me…

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INTRODUCTION

Hallucinations (i.e. perceptions that occur without an external stimulus) and delusions (i.e. fixed beliefs that are not amenable to change) are categorized as positive symptoms of psychotic disorders, in which an individual loses contact with reality and demonstrates impairment in their thought process (APA, 2013). A substantial portion of the general population (2.5% to 31.4% internationally) report paranormal, psychic or bizarre perceptual experiences such as voice hearing, or hold strong beliefs (i.e. superstitions) that are not experienced as pathological or as an indication of a psychotic disorder. These experiences are referred to as Psychotic-like experiences (PLE's) (Kelleher & Cannon, 2011; Mawson, Cohen & Berry, 2010; van Os et al 2009; Pérez-Álvarez et al 2008; Johns & van Os, 2001; Linscott & van Os, 2013).

The positive symptoms of clinical psychosis are distinguished from PLE's by the degree of conviction, frequency and preoccupation with the experience. The subjective level of distress has been suggested as a significant indicator of the clinical significance of PLE's, in which distressing PLE's are pathological. Individuals are more likely to seek help if they are distressed by their experience (de Leede-Smith & Barkus 2013; Nelson, Fusar-Poli & Yung, 2012; Hill et al 2012).

Cognitive models of psychosis hold that levels of distress are informed by the cognitive appraisal (i.e. personal interpretation) of the experience (Taylor, Parker, Mansell & Morrison, 2013; Morrison, 2001; Garety et al 2001; Chadwick & Birchwood, 1994). The cognitive appraisal process involves searching for meaning or an explanation

for the aberrant experience. Appraisals may also be informed by cultural factors such as spirituality, which has a complex relationship with psychosis.

Spirituality, which is a connection to the sacred, transcendent and mystical (Koenig, 2012), allows and encourages transcendent, trance-like and extra-perceptual experiences (i.e. hearing the voice of God) that may be misdiagnosed by clinicians as part of a clinical psychotic episode. At the same time, psychotic patients frequently present with symptomatology that has spiritual content (i.e. belief that one is the Messiah). Spiritual understandings of PLE's can be positive or negative, such that an individual can interpret his or her experience as benevolent (i.e. an angel that guides and protects) or malevolent (i.e. the Devil trying to possess or attack), which could potentially influence subjective distress (Jackson & Fulford, 1997; Lukoff, 2005; Geekie, 2007; Getz, Fleck & Strakowski, 2001; Heriot-Maitland, 2008; Dein & Cook, 2015).

The appraisal process may also be impacted by the experience of traumatic life events, because trauma tends to create negative schemas about the self and the world. Negative schemas inform how individuals process information, creating a tendency to assign global, negative meaning to life experiences (Foa et al 1999; Bryant & Guthrie, 2005). Higher rates of trauma have been found in both clinical and non-clinical groups reporting psychotic-like experiences (Lovatt et al, 2010; Andrew, Gray & Snowden, 2008; Morrison, Frame & Larkin, 2003) and specific trauma variables (i.e. childhood sexual abuse) influence beliefs about the malevolence, benevolence and omnipotence of hallucinations. A history of trauma may therefore explain how spiritual individuals may come to make negative appraisals of their psychotic experience, leading to more distress. For example, a spiritual individual who has experienced trauma may be more likely to

make an external attribution to their experience, thinking that a malevolent force or spirit is attacking him or her.

This study aims to explore the relationship between spirituality, trauma and cognitive appraisals among individuals who endorse anomalous experiences. The following text includes a theoretical review of psychotic symptoms, spirituality, trauma and cognitive appraisals. This is followed by an analysis of a proposed model exploring the associations between these variables within a selected sample of individuals.

CHAPTER 1: REVIEW OF THE LITERATURE

Psychosis in the General Population

Psychosis is a symptom domain that is characterized by extra-perceptual experiences and disordered thinking that suggest a loss of contact with reality. The disorder includes hallucinations and delusions, which are placed in the category of positive psychotic symptoms (i.e. exacerbation of normal functioning) (APA, 2013; Davison & Neale, 2001). Hallucinations are "perception-like experiences that occur without an external stimulus" and are vivid, clear, involuntary and may occur in any sensory modality (APA, 2013). Delusions are defined as "fixed beliefs that are not amenable to change in light of conflicting evidence" centered on themes such as persecution, ideas of reference, somatic complaints, religion or grandiosity. Hallucinations and delusions frequently occur together, though there is some suggestion that delusions are a cognitive response to hallucinatory experiences and thus are a secondary expression of symptoms (Maher, 1999; Freeman et al 2002; de Leede-Smith & Barkus, 2013; Smeets et al 2012).

There has been a shift from the categorical approach to diagnosing psychosis (presence or absence of symptoms) to growing acceptance of a dimensional view of psychosis. The dimensional view holds that psychosis exists on a continuum, ranging from individuals with an experience of symptoms that clinically indicate psychosis to those who endorse experiences that either do not reach clinical significance or are not subjectively experienced as indicative of disorder (Ahmed, Buckley & Mabe, 2012; Kelleher, Jenner & Cannon, 2010; Dominguez et al 2011; Mawson, Cohen & Berry,

2010; van Os et al 2009; Pérez-Álvarez et al 2008; Johns & van Os, 2001). Evidence for the dimensional perspective comes from epidemiological studies, which find that many individuals endorse psychotic symptoms and that these are not inevitably associated with psychotic disorder (Werbeloff et al 2012; van Os et al 2009; Dominguez et al 2011).

Although psychotic-like experiences have been found to occur in the general population, it is still a low prevalence phenomenon. Previous studies have used relatively small group sizes to observe differences in cognitive appraisals of patient and non-patient groups (i.e. 30 to 60 participants) (Cottam et al, 2011; Brett et al, 2014; Chadwick & Birchwood, 1994). A majority of prevalence studies report rates for individuals endorsing at least one psychotic symptom in their lifetime. Prevalence rates of individuals endorsing at least one lifetime psychotic symptom range from 2.5% to 31.4% internationally (Linscott & van Os, 2012; Hanssen et al 2005; Kendler et al 1996). Most recently, a 7.2% prevalence rate of lifetime psychotic experiences was found in the general population (Linscott & van Os, 2013). The presence of even one symptom impacts the health of individuals and may contribute to a decline in health status (i.e. disturbance in mood, sleep, energy, cognition, social engagement, etc.) among those who do not meet criteria for a psychotic disorder (Nuevo et al 2010).

A meta-analysis by van Os et al (2009) reported a prevalence rate of 8% with subclinical psychotic experiences, distinguishing these experiences from clinical psychotic symptoms, which are associated with distress and help-seeking behavior (4%). The reported rates vary based on measurement (i.e. what questions are asked to ascertain endorsement of psychotic experiences) as well as how individual investigators determine the cut-off between psychotic symptoms and psychotic disorder (van Os et al 2009).

Viewing psychosis on a continuum is a controversial approach despite the evidence offered to support the dimensional view. Opponents to the dimensional approach have cited limited empirical support and limited measurement of specific aspects of psychosis and argue for examining whether subtypes or hybrid models might better account for the distribution of symptoms. They also argue that the distribution of symptoms in the general population might not mean that psychosis is qualitatively indistinct from normal experience (Lawrie et al 2010).

The psychotic continuum includes a range of experiences of unusual perceptual sensations (i.e. auditory/visual hallucinations), and anomalies in ideation (i.e. ideas of reference or suspiciousness). The non-clinical end of the continuum includes experiences of altered perception that are odd or bizarre to the individual. These types of experiences are outside of the "normal" range of experience, yet the individual has insight on the bizarreness of the experience and is aware that he or she has experienced something that goes beyond the typical range of perception. The individual may or may not be concerned about the experience and may interpret it in a benign or positive way. At the other end of the continuum is the individual who experiences a perceptual aberration and loses the insight that would allow him or her to distinguish between whether that perception is real or not. This individual would believe that his or her experience is real, and is likely distressed by it (Ahmed, Buckley & Mabe, 2012; Kelleher, Jenner & Cannon, 2010; Dominguez et al 2009; Mawson, Cohen & Berry, 2010; van Os et al 2009; Pérez-Álvarez et al 2008; Johns & van Os, 2001; Jackson & Fulford, 1997) (See Figure 1 for an

illustration of the continuum).

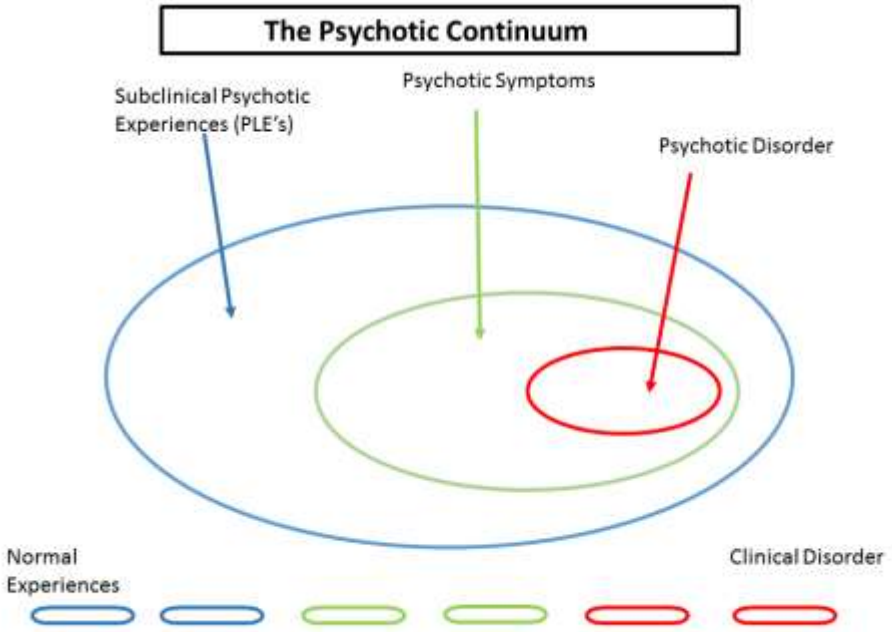


Figure 1: The Psychotic Spectrum (van Os el at 2009)

Individuals at the non-clinical end of the continuum may endorse hallucinatory experiences (i.e. hearing a voice) or strongly held beliefs that do not reach the threshold of clinical relevance for a diagnosis of psychosis. These types of experiences may be referred to as anomalous or Psychotic-Like Experiences (PLE's). These experiences may not be bizarre, engender distress, draw attention or prompt help seeking, which is what distinguishes them from symptoms that indicate clinical psychosis. PLE's may occur independent of psychotic disorder, endure over time and occur in the general population (Yung et al 2006; Nuevo et al 2010; Linscott & van Os, 2012; Nelson, Fusar-Poli & Yung, 2012; de Leede-Smith & Barkus 2013). The boundaries of clinical psychosis are determined by degree of conviction, frequency and preoccupation (Strauss, 1969; Linscott & van Os, 2012; Johns & van Os, 2001; de Leede-Smith & Barkus 2013; David,

2010; van Os et al 2009; Brett et al, 2007; Hill et al 2012). According to van Os et al (2009), the transition from psychotic experience to psychotic symptom is influenced by the persistence of symptoms as well as environmental risk factors (i.e. trauma, cannabis use and urbanicity). Psychotic-like experiences that are transient or occur one time only would not be considered to be symptoms of psychosis, unless those experiences were believed to be real and not subjectively experienced as aberrations. An increase in the frequency of PLE's would also be indicative of disorder.

Distinctions have been made between the quasi-dimensional model of the psychosis continuum and the fully dimensional model (Yung et al 2009; Johns & van Os, 2001). The quasi-dimensional model views PLE's as incompletely expressed schizophrenia, such that an individual endorsing these experiences may later experience the onset of psychotic disorder under sufficient psychosocial stress. The fully dimensional model, on the other hand, does not distinguish PLE's from in the normal population from PLE's in a clinical population, and holds that PLE's are part of personality, and may range from disordered to as part of normal functioning. The majority of PLE's are transitory in nature and do not evolve into psychotic disorder (Nelson, Fusar-Poli & Fusar-Poli et al, 2012). However, PLE's are associated with increased relative risk of later psychosis as well as non-psychotic mental disorders (van Os & Murray 2013; Kelleher et al 2012; Dominguez et al 2009; Johns & van Os, 2001). If symptoms are viewed on a continuum from nonclinical (i.e. no need for care) to clinical (i.e. need for care), it would be essential to distinguish what factors determine where one falls on the continuum as well as the risk factors for transition from one end of

the continuum to the other (Dominguez et al 2009; van Os et al 2009; Ahmed, Buckley & Mabe, 2012; Linscott & van Os, 2012).

Cognitive Models of Psychosis

Cognitive appraisal theory explains the process through which a person evaluates whether a particular encounter is relevant to his or her wellbeing (Folkman et al 1986). In a review of this theory, Scherer (1999) noted that the theory suggests that emotions are elicited and differentiated based on the individual's subjective evaluation of the personal significance of a situation as well as the potential harms and benefits, which influences coping processes. The understanding or meaning assigned to any experience is known as the appraisal of the experience (Romme & Escher, 1989; de Leede-Smith & Barkus 2013; Nelson, Fusar-Poli & Yung, 2012; Hill et al 2012. Appraisals are informed by attributions (i.e. external vs. external), core relational themes (i.e. loss of a valued person or object), and meaning (i.e. how feeling states are labeled using emotion words). Scherer (1999) argued that appraisals are highly subjective and depend on the individual's perceived goals, values, and coping potential and this explains why similar events can trigger different emotions in different people. Although appraisals are individually subjective, they are informed by cultural value systems. It has been found that members of different cultures differ in their appraisals (Scherer, 1999).

The relationship between appraisals, emotional distress and psychosis has been given a great deal of consideration in cognitive models of psychosis. Cognitive models of psychosis have attempted to link the cognitive, affective and behavioral experiences of individuals with psychosis, considering the important role that beliefs and appraisals

about one's psychotic experiences may have on one's subjective experience as well as the recurrence of symptoms (Birchwood & Chadwick, 1997; Morrison & Haddock, 1997; Garety et al, 2001; Morrison, 2001; Mawson, Cohen & Berry, 2010). Individual beliefs about their thought processes and internal experiences determine the kinds of appraisals they make about anomalous experiences (Brett et al 2009). The cognitive model of voice hearing, for example, proposes that the cognitive appraisals (i.e. ideas about control, identity, power and purpose) that occur after a voice hearing experience influence the individual's emotional, behavioral and somatic responses to the experience (Mawson, Cohen & Berry, 2010). Emotional and behavioral responses can serve to strengthen or weaken cognitive appraisals about voices (Chadwick & Birchwood, 1994; Mawson, Cohen and Berry, 2010). Appraisals of psychotic experiences may be positive or negative. For example, Romme & Escher (1989) found that in a sample of non-clinical voice hearers those who experienced their voices as benevolent were less likely to report distress than those who experienced them as malevolent. Negative emotional appraisals have been associated with positive psychotic symptom formation and maintenance (de Leede-Smith & Barkus, 2013; Daalman et al 2011; Barrowclough et al 2003).

While cognitive models all attempt to explain what cognitive mechanisms underlie the psychotic experience, the various models differ in how they explain the significance of the content of these experiences (i.e. what is seen or heard) and the processes (i.e. how it occurs) (Badcock & Hugdahl, 2012). Many of the models consider the cognitive factors involved in the etiology of psychotic experiences. The primary focus of this discussion, however, is on the models as they conceptualize the relationship

between cognition and the subjective experience of PLE's and how they inform the distinction between non-clinical PLE's and clinical psychotic symptoms.

Hallucinations

Hallucinatory experiences include the experience of anomalous auditory and visual phenomena. Auditory hallucinations in particular, have received a great deal of consideration in cognitive models of psychosis. One of the earliest models of voice hearing was conceptualized by Chadwick and Birchwood (1994; 1997) who assumed that auditory hallucinations are an activating event, and that it is the meaning attributed to the voice hearing experience that impacts distress and behavior. Their model also suggested that the distress experienced by voice hearers may be understood in the context of the relationship the individual has with the voice as opposed to the voice content or illness characteristics (i.e. omnipotence and power of the voice). Specifically, the power, control and perceived danger of a voice have more of an influence on distress levels than what the voice is actually saying. This relationship is also related to whether the voice is interpreted as malevolent or benevolent. Persecutory or malevolent constructions of power are associated with resistance, evoking avoidance behaviors and despair, while benevolent voices are courted and experienced as amusing (Chadwick & Birchwood, 1994). The authors believed core interpersonal cognitive schemas influence the interpretation of the valence of a psychotic experience (i.e. malevolent or benevolent. These schemas are autobiographical in nature. In other words, significant interpersonal relationships (i.e. powerful caregivers) might inform the overall power as well as experience of the voice, thereby informing distress levels (Chadwick & Birchwood, 1997; Birchwood et al 2000). The perceived power of differential between the self and

others influences the perceived rank of the voice relative to the voice hearer. In subsequent studies, the authors found that social schemas affect beliefs about the voices as well as depression; specifically, individuals who appraised voices with higher power and rank than themselves (i.e. dominant, shaming) rated the voices as more frequent and louder, and were significantly more distressed and depressed (Birchwood et al 2000; Birchwood et al 2004).

Delusions

Delusions are an attempt to explain experience, which may involve irrational beliefs that are contrary to an individual's religious, social and cultural norms (Maher, 1999; Bentall et al 2001; Bradbury, 2013). According to Maher (1999) a major difference between delusional and non-delusional beliefs is the nature and intensity of the experience that is being explained. The author also suggests that those who experience clinically pathological delusions have more intense and prolonged anomalous experiences (Maher, 1999). Bentall et al (2001) noted the common observation that individuals who endorse persecutory delusions make abnormal attributions, including exaggeration of self-serving bias and a tendency to attribute negative events to powerful others. In a model of persecutory delusions, Freeman et al (2002) highlighted the individual variation that exists regarding the formation and maintenance of delusions, hypothesizing about conviction and distress. In understanding the distress that is associated with delusions, the authors hypothesized that emotional distress may arise either from the content of the delusion (i.e. cognitive content of emotions expressed in the delusions) or from further appraisal of the delusion and the experience of the delusion. The appraisal may increase negative emotional reactions to the delusional belief such as

feelings of failure and badness and may result in depression. The authors also propose that higher levels of delusional distress will be associated with appraisals that incite worries about a lack of control, vulnerability and danger of persecutory thoughts which may be associated with depression and anxiety. It is also possible that negative beliefs about the self already exist and may inform the content of the delusion (Freeman et al 2002).

Metacognition

Metacognition refers to one's thoughts about their thoughts. In the context of psychosis, metacognition is linked to the interpretation, selection and execution of particular thought processes involved in the experience of psychotic symptoms (i.e. I'm being possessed; I should try to cope) (Pérez-Álvarez et al 2008; Morrison, 2001). Metacognitive thoughts include beliefs about the controllability and causal influence of the thoughts as well as the personal responsibility for the content of psychotic experiences. In one model, Morrison (2001) considered the positive symptoms of psychosis, focusing on the interpretation of intrusive thoughts or experiences that were associated with distress and disability. The author suggests that the interpretation of intrusions is central to understanding psychotic symptoms. According to this model, misattribution of internal stimuli (i.e. intrusive thoughts) leads to cognitive appraisals about the experience. He argued that the interpretations were affected by social and self-knowledge and were maintained by mood and physiology as well as cognitive and behavioral processes such as selective attention (Morrison & Haddock, 1997; Morrison et al 2001) Building on the Self-Regulatory Executive Function (SREF) model of emotional disorder (Wells & Matthews, 1996), Morrison (2001) incorporated metacognition into the

psychosis model. His model suggested that positive metacognitive beliefs about worry were associated with the occurrence and maintenance of hallucinations and delusions. Negative beliefs about intrusion, controllability and danger were associated with distress underlying the transition from non-pathological to distressing responses (Morrison, 2001; Morrison, Wells & Nothard, 2002; Morrison, 2007). His model also suggested that cognitive misattributions, which are culturally unacceptable, increase negative mood and arousal, producing more hallucinations, which creates a vicious circle (Morrison, 2001).

The causal influence of metacognitive beliefs in the context of PLE's is unclear, but these beliefs have been associated with greater psychopathology (Brett et al 2009). In a test of Morrison's model, Brett et al (2009) found that compared to non-clinical groups, clinical groups endorsed more negative metacognitive beliefs, which supported the notion that need for care in the experience of PLE's is associated with maladaptive metacognitive beliefs. In an attempt to distinguish individuals who were at risk for psychosis, the authors found that negative beliefs about thoughts in general (i.e. superstition, responsibility and punishment and positive beliefs about worry made the distinction between those at risk and those who were not (Baker & Morrison, 1998; Brett et al 2009). The association between metacognitive beliefs and voice hearing was no longer significant when the authors controlled for anxiety and depression, which led to the conclusion that distress may be related to general psychopathology rather than metacognitive beliefs. Hill et al (2012) suggested that the association between metacognitive beliefs and voice hearing may be related to the distress associated with those experiences, with metacognitive beliefs serving as a risk factor for emotional distress in general, more than specifically for psychosis. Further analyses found that

unhelpful metacognitive beliefs concerning need for control significantly predicted distress associated with PLE's. The findings suggest that metacognitive beliefs are not associated with etiology of PLE's but more with the distress associated with them (Brett et al 2009; Hill et al 2012).

Towards a Unified Cognitive Model of Positive PLE's

Garety et al (2001) proposed a cognitive model of psychosis explaining how cognitive factors (i.e. appraisals and meaning making) determine whether psychotic like experiences develop into full-blown psychotic symptoms. Their model builds on other cognitive models of psychosis including the model proposed by Chadwick and Birchwood (1994), which proposed that it was the beliefs or appraisals of auditory hallucinations that resulted in distress and disability for psychotic individuals as it involves the "meaning" that is given to those experiences. Garety et al's (2001) model focuses on positive symptoms of psychosis (both hallucinations and delusions) and includes affective disturbance as a potential route to these symptoms. The model incorporates disruptions in both automatic cognitive processes as well as maladaptive conscious appraisals, giving emotion a central role, and considers what social factors may contribute to the expression of symptoms. The authors posited that the appraisal of symptoms was the defining distinction when considering affective disturbance: Individuals experience distress when they appraise their experience as externally caused and personally significant and this places them more at risk for psychosis (Garety et al 2001).

The confusion that ensues after an anomalous experience triggers a search for explanations of their cause. In Garety et al's model (2001), conscious cognitive appraisals contribute to the judgment that these anomalous experiences are confusing and are externally caused, which is what the authors think is the defining decision that informs distress and psychosis. Appraisals that are externally caused and personally significant may be reflected in the content of hallucinations and delusions (i.e. command hallucinations or beliefs that one is being attacked or invaded). This model emphasizes how negative schematic models of the self, which are informed by past and current adverse experiences, facilitate external and personal appraisals (Garety et al 2001; Brett et al 2009). The authors argue that individuals who endorse PLE's do not develop full-blown psychotic symptoms if they are able to reject the hypothesis of externality, which would lead to them making a protective self-correcting decision that attributes source of the experience to internal factors (e.g. "My mind is playing tricks on me" or "I must be stressed"). Other studies have made this distinction as well, noting that healthy individuals who hear voices for example, are typically aware that the voices stem from inner thought and not from an external source. This allows them to cognitively cope with the PLE's using intact inhibitory control functions, which are a function of top-down processing (Hugdahl, 2009; Badcock & Hugdahl 2011).

Emotional Responses to Psychotic-Like Experiences (PLE's)

According to cognitive models of psychosis, the subjective experience of psychotic symptoms, and specifically the level of associated distress, has been identified as a key factor that determines when a PLE becomes symptomatic (Brett et al 2014; Garety et al 2001; Bak et al 2005a; Chadwick & Birchwood, 1994; González-Pinto et al

2004). Distress refers to the emotional impact of the psychotic experience and may include the level of worry associated with the experience (Morrison & Wells 2007; White & Gumley, 2010). Geekie (2007) suggested that there might be an assumption that psychotic experiences are inherently distressing to the individual, which may be why the importance of emotional distress is sometimes overlooked. Research indicates, however, that not all individuals are distressed by their psychotic experiences. For example, a significant portion of voice-hearers have a neutral or positive relationship with their voices and may experience them as pleasurable (Romme & Escher, 1989; González-Pinto et al 2004). The variation in distress levels is therefore important to understand given the important role that distress plays in determining the severity of psychotic experiences.

Emotional distress has two potential routes in the pathways from nonclinical psychotic experiences to clinical psychotic symptoms. One route places emotional distress as a precipitator for psychotic like experiences, such that emotional disturbances and stress (i.e. anxiety and depression) may facilitate psychotic experiences (Garety et al 2005; Allen et al 2005). This is akin to a stress vulnerability model of psychopathology, such that the psychotic experience occurs after a stressful life event (Myin-Germeys & van Os, 2007). Feelings of confusion associated with pre-morbid anxiety or depression may cause anomalous experiences such as hallucinations, to occur (Freeman et al 2002; Freeman & Garety, 2003). The other route considers the emotional distress brought on by psychotic-like experiences. High levels of anxiety associated with psychotic experiences may contribute to catastrophizing and worry, which in turn results in an anticipatory response (Startup, Freeman & Garety, 2007). Worrisome anticipation of psychotic experiences may contribute to the maintenance of experiences, prolonging their

occurrence (Hanssen et al 2005. An increase in psychotic experiences is indicative of clinical psychosis (Freeman et al 2002) and likely contributes to distress (Startup, Freeman & Garety, 2007). Emotional disturbance and distress may therefore be a contributor or consequence of psychosis (Birchwood, 2003; Morrison & Wells, 2007; Freeman & Garety, 2003).

Distress is most commonly expressed as anxiety or depression. Anxiety and depression are highly co-morbid with psychotic experiences (Devylder et al 2014; Freeman & Garety. 2003; Startup, Freeman & Garety, 2007). For example, high levels of anxiety and depression are reported in both clinical and non-clinical samples of voice hearers (Birchwood & Chadwick 1997; Mawson, Cohen & Berry, 2010). Individuals with anxiety and depression have been found to be more distressed by their hallucinations and delusions (Smith et al, 2006). Anxiety and depression have also been found to be one of the strongest predictors of transition to psychosis in high-risk populations and of relapse in psychosis populations (Owens et al 2005; Freeman & Garety, 2003).

Power et al (2015) recently found that distress was not associated with the transition to psychosis among individuals with attenuated psychotic symptoms and suggested that distress not be used as a criterion for risk for psychosis. In fact, there are other aspects of psychotic-like experiences which may be associated with distress (i.e. uncontrollability, danger, persecution, powerlessness and externality (experience is caused by other people or some outside agent) that inform the subjective experience and emotional response of PLE's. Although there is less data in the literature on positive experiences of psychotic symptoms, Sanjuan et al (2004) found that in a clinical sample of voice hearers, pleasurable hallucinations were positively associated with chronicity

and negatively associated with distress and negative appraisals. The authors noted that those who experienced their hallucinations as pleasurable also experienced more perceived control and had experienced other perceptual anomalies, suggesting that individual characteristics such as coping style, personality and mood influence the subjective experience of psychotic symptoms (Sanjuan et al 2004). Social and cultural acceptability (i.e. spiritual explanations) of psychotic experiences also inform the emotional response to PLE's and have been found to be protective factors, resulting in less distress (Brett et al 2014).

Culture and Explanatory Models of Psychotic Experiences

Culture, which is defined as socially and inter-generationally shared assumptions, norms, values and habits (Triandis, 2001; Draguns, 1995) plays an important role in the phenomenology and conceptualization of psychotic symptoms (Azhar, Varma & Hakim, 1995; Draguns, 1995; Gupta & Bhugra, 2009). Corin, Thara & Padmavati (2004) suggest that people who experience psychosis resort to associative chains that are informed by their culture. Cultural associations determine the peculiarity assigned to that experience (Corin, Thara & Padmavati, 2004). The cultural acceptability of psychotic-like experiences is considered to be a distinguishing factor in determining whether a PLE is deemed to be symptomatic of psychosis or not (Larsen, 2004). In fact, the DSM-V cautions practitioners to consider the cultural context in which the psychotic experience occurs before making a diagnosis. More specifically, if the psychotic experience is outside of the range of culturally acceptable experiences or explanations for that experience, then it is considered to be indicative of a disorder or not (APA, 2013; Larsen, 2004). Cross-cultural, clinical and experimental research data all indicate that social and

cultural factors affect the definition, type, frequency and emotional response to psychotic experiences. Culture also influences how individuals interpret their experiences, how they describe them, and how they seek help. Social and cultural factors also play a role in the development and maintenance of psychotic experiences (Al-Issa, 1977; 1995, Gupta & Bhugra, 2009; Suhail & Cochrane, 2002); Joel et al 2003; Napo, Heinz & Auckenthaler, 2012; Saravanan et al 2007; Okulate & Jones, 2003; Earl et al, 2015).

The cultural mechanisms that inform the course of psychotic experiences include the meaning that is attached to the experiences, which has been found to differ across cultures (Rousseau, Key & Mesham, 2005). Cultural conceptualizations of illness may also be referred to as explanatory models which influence treatment seeking and adherence (Napo, Heinz & Auckenthaler, 2012; Saravanan et al 2007, Larsen, 2004; McCabe & Priebe, 2004). Distinctions are often made between Western and non-Western approaches to understanding psychosis, as well as how psychosis is treated. For example, psychosis is considered to have a better prognosis in non-western societies (Corin, Thara & Padmavati, 2004; Castillo, 2003). Non-Western societies report psychotic experiences more frequently and this may be due to certain behaviors and experiences being culturally sanctioned (Al-Issa, 1977; 1995; Suhail & Cochrane, 2002). Cultural explanations for the occurrence of anomalous experiences are often supernatural or spiritual in nature. Spiritual experiences can be both positive and negative. For example, many cultures would interpret certain psychotic experiences superstitiously, viewing the experiences as indicative of bad luck or, evil (Earl et al, 2015; Napo, Heinz & Auckenthaler, 2012; Joel et al 2003). These experiences may also be viewed positively,

such that individuals engage in certain rituals or practices in order to invoke hallucinatory experiences (i.e. trances) (Al-Issa, 1977).

In Western societies, psychotic experiences are viewed as unique and anomalous and may therefore induce more worry and distress (Schwab, 1977). Castillo (2003) argued that in Western cultures, egocentrism and a loss of spiritual explanations for psychosis results in greater pathologizing of non-clinical psychotic like experiences which he calls "functional psychoses." It would be inaccurate to state that PLE's are culturally unacceptable in non-western societies, however. In fact, studies have shown that cultural definitions may also influence interpretations of psychotic experiences in the U.S (Adebimpe, Klien & Fried, 1981; Schwab, 1977). For example, Schwab (1977) found that rural blacks in Florida shared a cognitive framework that allowed for hallucinatory experiences in the form of religious visions and communication with the dead. These experiences were viewed positively as they indicated private communication with the spiritual world. The preponderance of spiritual and religious cultural explanations for experiences that may be defined in other cultures as psychotic indicates that spirituality is a significant aspect of culture to be considered in conceptual models of psychosis.

Spirituality

Numerous cross-cultural studies discuss the relevance of spiritual beliefs and practices as they relate to cultural conceptualizations of psychosis. According to Hufford (2005), cultural models provide content for spiritual experiences, such that ordinary experiences including dreams, mirages and psychotic experiences can be converted into

spiritual experiences. Spirituality can be considered to be an important cultural factor that influences the development of psychotic experiences as well as how individuals make sense of them. Spirituality, which was defined by Koenig (2012) as "a connection to that which is sacred, the transcendent…intimately connected to the supernatural, the mystical and to organized religion" is often conflated with religion, which is defined as "beliefs, practices and rituals related to the transcendent…an organized system of beliefs, practices and symbols designed to facilitate closeness to the transcendent and foster an understanding of one's relationship and responsibility to others in living together as a community" (Koenig, 2012). As the term 'spirituality' captures much of the complexity of a belief in a higher power, including religious practices, it will be used in this paper to refer to all aspects of spirituality, including religious belief and involvement.

There has been a long-standing recognition of the complex relationship between spirituality and psychosis (Jackson & Fulford, 1997; Lukoff, 2005; Heriot-Maitland, 2008). Experiences of psychotic-like experiences such as voice hearing are viewed as religious experiences in some cultural settings (Cottam et al 2011, Gupta & Bhugra, 2009). Moreover, the content of many of the reported hallucinations and delusions of psychotic patients are centered on religious/spiritual themes, which hold considerable importance for patients (Geekie, 2007; Getz. Fleck & Strakowski, 2001). Patients with psychosis also frequently turn to religion as a source of meaning and a way to cope with symptoms (Huguelet et al 2010). Spiritual individuals are more likely to explain their psychotic experiences within a paranormal or mystical context (i.e. spirits, ghosts) (Suhail & Ghaury, 2010). Spirituality also influences illness representations for psychotic patients, influencing their convictions both positively (i.e. a test or gift send from God)

and negatively (i.e. punishment from God, devil or demon possession), affecting adherence to psycho-pharmacological treatment (Borras et al, 2007).

Spiritual Experience or Psychotic Experience?

Spiritual experiences involve some type of a connection to phenomena that are outside of the realm of normal consciousness or understanding. Moreira-Almeida (2012) defined a spiritual experience as an experience where the person believes to be in contact with spiritual entities or dimensions of the universe, including experiences of seeing and hearing spiritual beings, trances and being under the influence of an external spiritual entity. These types of experiences tend to be short in duration and the interpretation and value given to them varies across cultures (Eeles, Lowe and Wellman, 2003). These types of experiences may also be referred to as "visionary spiritual experiences' and add a new dimension to individuals' spiritual life (Lukoff, 2007). As Lukoff (2007) describes, "people in the midst of a visionary spiritual experience traverse the range of the world's religions and cultural history in the form of religious content and experiences that are similar to hallucinations and delusions."

Because they are individual and mystical, it is often difficult to form a coherent understanding of these types of experiences (Eeles, Lowe and Wellman, 2003). Donovan (1998) identified four subtypes of spiritual experience: mystical, paranormal, regenerative and charismatic. Mystical experiences involve feelings of heightened awareness and a sense of oneness that is profoundly important to the individual. Paranormal experiences included out of body or psychic experiences, conflicting with the Western scientific understanding of the world. Charismatic experiences are sometimes

interpreted as manifestations of a spirit working within an individual (i.e. glossolalia [speaking in tongues]) and regenerative experiences bring a new way of being to individuals through religious enlightenment or conversion (Donovan, 1998; Eeles, Lowe & Wellman, 2003). Ng (2007) pointed to the Jerusalem Syndrome, which is a spontaneous acute religious psychotic experience seen in tourists who visit Jerusalem as an example of a mystical experience that attracts both spiritual and psychopathological explanations. Efforts to account for the onset of spiritual types of experiences have varied across disciplines ranging from seizures, hallucinatory drug use, alcohol, meditation practices, prayer and near death experiences (Eeles, Lowe & Wellman, 2003). Individuals may have mystical experiences and are able to integrate them into their lives without any psychiatric or religious intervention (Lukoff, 1985).

According to Heriot-Maitland (2008) mystical and psychotic experiences are both "altered states of consciousness" characterized by mystery and a break down in reasoning. In psychotic patients, voices are frequently attributed to God, the Devil or other supernatural entities and delusions often involve religious figures. There is also a sense of being guided by an external power with perceived meaning found in events as well as a sense of purpose in life (Heriot-Maitland, 2008). The commonality between certain spiritual experiences and psychotic experiences (i.e. hearing voices, visions, etc.) make it difficult to accurately distinguish between the two (Dein & Cook, 2015; Ward et al 2013; Berman 2006; Ng, 2007; Johnson & Friedman, 2008; Menezes & Moreira-Almeida, 2010; Moreira-Almeida, 2012). Eeles, Lowe and Wellman (2003) highlighted the inconclusiveness of scientific explorations of spiritual-type experiences, suggesting that more emphasis be placed on understanding these phenomena because of the clinical

implications. Since biblical times, various religious leaders (e.g. Moses, Jesus, Mohammed) were all reported to have heard the voice of God and valued these experiences as a gift that was to be nurtured (Preuss, 1975; Scott 1997) and these were interpreted as divine experiences and not as indicators of psychopathology. As Berman (2006) summarized, Freud held that all religion is a form of mental illness, suggesting that belief in God is a mass delusion, while Jung suggested that madness is religion that is not yet understood, pointing to the common acknowledgment of some sort of God or mystical belief across cultures as an indicator that religion is part of our collective unconscious. Clark (2001) proposed that spirituality and psychosis are a unified area of human experience, as they both reflect attempts to make sense of the world without the use of usual reality constructs.

Spiritual Practice as a route to Mystical/Psychotic Experiences

Spiritual practices such as prayer, meditation, and fasting are rituals that facilitate spiritual experiences that may or may not be indicative of a psychotic process (Hufford, 2005). Kohls, Walach & Wirtz (2009) suggest that regular spiritual practice or exercise might be pivotal in understanding the connections between spirituality and health, citing the various mystical traditions that have religious roots as well as practices that are geared towards experiencing altered states of consciousness. Luhrmann (2004) writes about evangelical communities in the U.S. whose members seek out extraordinary intense spiritual experiences in order to develop a more intimate relationship with God. According to Luhrmann (2004), prayer becomes a conduit for anomalous psychological experiences and trance states. Some religious groups are more likely to have experiences that would be understood as indicative of positive psychotic experiences. For example,

Peters et al (1999) found that members of New Religious Movements and individuals with profound religious experiences had elevated scores of positive psychotic symptomatology and suggested that members of these types of groups may lie at the intersection between normal (religious and non-religious) individuals with psychotic experiences and those with psychotic delusions (Peters et al, 1999).

Spiritual (Religious) Hallucinations

Hallucinatory experiences such as visions or hearing a voice have been a part of the human experience since biblical times and were interpreted as divine experiences. These same experiences have also been regarded as an important symptom of psychosis (Davies, Griffin & Vice, 2001). Spiritual accounts of hallucinatory experiences look for meaning that included understanding voice hearing as coming from a higher self or supernatural entity and may signify divine favor, demonic wrath, spiritual emergence or shamanic potential (McCarthy-Jones, Waeglie & Watkins, 2013). For example, individuals who are spiritual would not refer to their experience of hearing a voice as an auditory hallucination, but would refer to an "inner voice" or spiritual guide, a positive experience, which is facilitated by rituals such as prayer (Scott, 1997). In some cultures (non-Western) hallucinations are regarded as sacred while in many Western cultures, these same experiences are perceived as threatening (Davies, Griffin & Vice, 2001). In religious contexts, hallucinatory experiences are considered to be holy and transcendent while some may be interpreted demonic possession (Hood, 1973b). In their comparison study of normal controls, evangelical Christians and psychotic outpatients Davies, Griffin & Vice (2001) found that the occurrence of hallucinatory experiences was found to increase among evangelical Christians, although levels of auditory hallucinations were

significantly lower for evangelical Christians compared to psychotic patients (Davies, Griffin & Vice, 2001). They also found that the experience of auditory hallucinatory experiences was rated significantly more positive in evangelical Christians than in normal controls. This finding has been replicated in subsequent studies (Davies, Griffin & Vice, 2001; Cottam et al 2011).

McCarthy-Jones, Waeegli & Watkins (2013) suggest that spirituality may be helpful for individuals with hallucinatory experiences as it may offer an alternative explanation for experiences, aiding in interpreting them as meaningful and helping individuals cope by engaging in practices that may reduce the power and control of the voice. This may help normalize the experience, reducing stigma and distress. Spirituality may also enhance social support if the individual belongs to a religious community (McCarthy-Jones, Waegeli & Watkins, 2013). Spirituality might not always engender positive interpretations of hallucinatory experiences, however. For example, spirituality may encourage individuals to interpret the voices are frightening or coercive if they are seen as demonic entities and this may lead to greater distress and impairment. Power attributed to the voices, whether interpreted as positive or negative may increase risk of harm to self or others if they are perceived as omniscient or omnipresent. The authors suggest that benevolent voices may come to be trusted by spiritual individuals and this may make it easier to trust and revere malevolent voices (McCarthy-Jones, Waegli & Griffin, 2013).

Spiritual (Religious) Delusions

Religious themes are common across delusion categories. It can be difficult to distinguish between a delusion and an overvalued belief (Mohr et al 2010). The beliefs expressed in a religious delusion are idiosyncratic, lack empirical content, and are not accepted within a particular culture or subculture. In other words, strongly held beliefs that are shared within an existing religious or spiritual context are not considered to be religious delusions (Iyassu et al 2014; Mohr et al 2010). Some religious delusions may not be deviant in content as they may adhere to mainstream Christian doctrine and are based on the bible; however, if the individual becomes entirely immersed in their religious preoccupation and the beliefs cause the individual to experience extreme distress, then they would be considered pathological (Peters, 2001). As an example of the difference between a religious belief and a delusion, Iyassu et al (2014) described two scenarios: an individual who believed himself to be able to hear the voice of God is common within a religious context and would not be considered a delusion, but an individual who believed to himself to be inhabited by warring spirits or deities would be considered to have a religious delusion.

Religious delusions vary in prevalence and are influenced by social and cultural norms (Bhavsar & Bhugra, 2008; Mohr & Huguelet, 2004). The content of religious delusions include themes such as an evil presence or battle with the Devil, grandiosity (i.e. believing one is the messiah), or feelings that one has committed an unforgiveable sin (Mohr et al 2001). These types of delusions have been found to correlate with poor clinical outcomes, exhibiting the greatest degree of distress, conviction and temporal instability, longer time before seeking psychiatric help, suicide and homicide. Religious

delusions are also more likely to be treated with medication and are most variable depending on the region where the individual lives (Iyassu et al 2014; Bhavsar & Bhugra, 2008; Siddle et al 2002; Mohr & Huguelet, 2004).

Siddle et al (2002) found that secondary religious delusions are the most common, such that a hallucinatory experience such as hearing a voice is attributed to God or the devil. Bhavsar & Bhugra (2008) suggest that religious delusions can be regarded as a manifestation of an attempt to harness readily accessible religious symbols to explain the "inner turmoil" of psychosis and find meaning in the experience of psychotic symptoms. Internal states are interpreted using spiritual symbols, which vary across cultures. Religious delusions are formed and maintained through the spiritual meaning attributed to them. The ease of access of religious symbols, which is determined by ritual activity, religious adherence and family upbringing, determines the prevalence of religious delusions within a community (Bhavsar & Bhugra, 2008). Anomalous experiences may be perceived as having religious significance, which may result in the experiences being attended to, engaged with or even deliberately induced. Increased frequency of these types of anomalous experiences may work to sustain delusions. Given that spiritual insights are based on revelation and inner conviction, it is likely that the reasoning biases associated with the severity, persistence and degree of conviction of a religious delusion will be more prominent in spiritual individuals (Iyassu et al 2014).

Mohr & Huguelet (2004) noted that although religious practices have been associated with a higher rate of religious delusions, religiosity is not necessary for the development of religious delusions. Suggested criteria for distinguishing a religious belief from a religious delusion include: the patient's self-description of the experience is

recognizable as a delusion; other symptoms of mental illness are present in the individual's life (i.e. hallucinations, mood or thought disorder) and the lifestyle; and goals of the individual after the experience are consistent with the history of a mental disorder rather than a sense of personal enrichment.

Distinguishing Spiritual Experiences from Psychotic Experiences

In *Varieties of Religious Experience,* William James (1985) argues that the distinction between pathology and belief are based on the quality of the experience and the functional outcomes rather than the content of the beliefs. Various authors have made that same distinction, moving from a focus on the content of the experience to emphasizing that the differences lie in the origin, interpretation and meaning given to the experiences, as well as the impact they have on the individual emotionally and behaviorally (Ward et al 2013; Donovan, 1998; Eeles, Lowe and Wellman, 2003; Green berg, Wtizum & Buchbinder 1992; Heriot-Maitland, 2008). For example, mystical experiences have been found to have more adaptive and life-enhancing consequences, while psychotic symptoms are associated with social and behavioral impoverishment. The meaning given to spiritual anomalous experiences impacts subjective levels of distress, engagement with services, whether an experience is responded to or not and how individuals respond to their experiences (Geekie, 2007). Mohr & Huguelet (2004) cited the potential for violent behavior as a reason to understand delusions hallucinations with religious content.

Jackson and Fulford (1997) posited that spiritual experiences "whether welcome or unwelcome" had nothing to do with medicine, though pathological psychotic

experiences did. They argued that it would be wrong to treat spiritual psychotic experiences with neuroleptic drugs for that reason. In their view, hallucinations that are "true" in nature are external and cannot be otherwise explained by affective disturbance or mood. Delusions are defined as incorrigible beliefs that are not culturally sanctioned. The authors also note that in order to consider spiritual experiences as genuine psychotic symptoms, the person should show a lack of insight into the psychological origin of their experience (Jackson & Fulford, 1997). The ability to bring oneself back to reality after a mystical experience or altered state of consciousness may be another way to differentiate a spiritual experience from a psychotic experience (Mohr & Huguelet, 2004). A sample of individuals who endorsed hearing the voice of God characterized this experience as a thought that spontaneously "pops" into their mind, noting that the clarity, authority, and relevance to biblical scripture allowed them to conclude that the communication was divine in nature. They also noted that the experiencing God's voice was only occasionally "out loud," not disturbing and that they did not feel controlled or compelled to obey God (Dein & Cook, 2015). Authors Dein & Cook (2015) contrasted this experience from voice hearing in schizophrenia in which individuals hear the voice out loud and feel compelled to obey them.

In an interview of nurses' interpretations of spiritual/psychotic experiences, Eeles, Lowe & Wellman (2003) found that nurses reported key features that helped them distinguish whether events reported were evidence of psychosis or not. According to the nurses, the emotional outcome of the experience was important, specifying that distress and other negative emotions associated with the experience indicated illness while also noting that positive emotions that grew into grandiosity and manic elation would also be

considered as signs of pathology. The nurses also cited ability to function, duration of the experience, negative content, normative acceptance within a particular cultural/religious framework, as markers to help distinguish spiritual experiences from pathological experiences (Eeles, Lowe & Wellman, 2003). In an effort to distinguish between psychotic experiences and spiritual experiences, Menezes and Moreira-Almeida (2010) outlined specific criteria which include: Absence of psychological suffering; Absence of social and occupational impediments; Shorter duration and happens occasionally; Critical attitude about the experience (i.e. can perceive the unusual nature of the experience); Compatibility of the experience with some religious tradition; Absence of psychiatric comorbidities; Control over the experience; Life becomes more meaningful; The individual is concerned with helping others.

In efforts to reduce the pathologizing of spirituality, the DSM has included the caveat that a religious belief is not to be considered a delusion if it is accepted by one's culture or subculture, warning clinicians that unfamiliarity with certain cultural religious practices may lead to inaccurate diagnosis of pathology (Berman 2006; American Psychological Association, 2013) Other experiences that have been are considered to fall under an individual's cultural framework include hearing or seeing a deceased relative during bereavement (APA, 2013). Another example of an experience that may be explained using spiritual references by "normal' individuals, is sleep paralysis. Hufford (2005) has interviewed numerous individuals who have experienced sleep paralysis (i.e. experience of some sort of evil presence at night), which is often interpreted by both spiritual and non-spiritual individuals as demonic or ghostly. Berman (2006) points out that a consensus criterion, whether it comes from the psychiatric or cultural assessment,

operates under certain assumptions that may not necessarily help us distinguish accurately between the different types of experience because it is left to the subjectivity of the one making the judgment. For example, he asserts that because something is a pervasive feature of human life or culture does not mean it should continue to do so, as it may reflect some sort of mass delusion in some subcultures. Conversely, the psychiatric criterion is subject to unethical pathologizing of certain religious experiences.

Religious Cognition

Spiritual attributions of psychotic experiences come from prior spiritual beliefs and differ from the types of beliefs non-believers may have about their psychotic experiences (Hufford, 2005). Dein & Littlewood (2011) argue that religion provides adherents with a religious cognition that focuses on supernatural agents and allows them to interpret everyday events as significant by associating them with divine cosmology. The authors argue that this religious cognition is counterintuitive and costly in terms of time and emotional involvement. Citing the similarities between spiritual experiences and the psychotic spectrum, the authors hold that both experiences involve the over-detection of agency and theory of mind in religious agents, noting that in circumstances of religious ritual, there may be a breakdown in the boundary between the self and the outside world. During mystical experiences, the boundary is breached such that the self is absorbed into the divine. The authors also argue that religion engenders the use of everyday cognitive processes that become part of the individual's mind (Dein & Littlewood, 2011). Religious individuals and psychotic patients have both demonstrated an external attributional bias that allows them to make sense of their unusual experiences (Siddle et al 2002).

Models of delusional formation suggest that spiritual symbols may be a part of an individual's internal appraisal scheme whether they adhere to a specific religion or not, and that this religious appraisal schema may increase the likelihood of developing religious delusions (Bhavsar & Bhugra, 2008). Cottam et al (2011) found that the reports of the majority of mentally healthy Christians who endorsed hearing voices indicated the use of schematic processing which included references to teachings from the Bible as well as themes from Christianity and religious practice. Conversely, psychotic Christian patients had schematic interpretations that were weaker and more superficial and did not result in a positive interpretation. More specifically, Christian psychotic patients talked about their voices as separate from their religious beliefs (Cottam et al 2011). The results of this study highlight the impact that spirituality has on the meaning that is attached to psychotic experiences, which informs distress and subsequent pathology.

Cottam et al (2011) suggest that religious individuals have different schemas that allow them to understand their experience within a spiritual context. Geekie (2007) suggests that for some individuals, their psychosis is viewed within a spiritual framework, which helps render the psychotic experience as meaningful and sometimes manageable. He goes on to suggest that spiritual individuals with PLE's may have a tendency to place their psychotic experiences in a metaphysical context where their experiences are considered to reflect something that has existential or moral significance for them (i.e. Good vs. Evil, God, the devil, spirits, etc). Spiritual individuals are better able to make sense of their experiences, which allows the experience to be more easily integrated. This may possibly buffer the emotional effect of the experience whether positive or negative (Kohls, Walach &Wirtz, 2009). Heriot-Maitland (2008) suggests that

"oneness" (i.e. a sense of underlying unity within existence that is related to transcendence) that is experienced through spiritual practice gives individuals a context to provide meaning for the experience allowing for the development of appraisals that are welcoming of the mystical state, allowing the individual to return to reality easily. Individuals with any kind of spiritual affiliation or knowledge are able to structure their appraisal around spiritual teachings or tradition. Psychotic individuals experience this "oneness" without context to place it in, which leaves the appraisal open to suggestion, and makes the transition back to reality more difficult (Heriot-Maitland, 2008).

Farias, Underwood & Claridge (2013) found that unusual experiences predicted engagement with modern spiritual practices and suggested that engagement with spirituality may serve as a protective factor against distress or depression associated with anomalous experiences. This may be explained by a greater acceptance of magical and paranormal beliefs within modern spirituality, which may contribute to a positive appraisal of unusual perceptions and ideations that might otherwise be distressing (Farias, Underwood & Claridge, 2013). In other words, spirituality may have a buffering effect that results in lower distress.

Garety et al (2001) suggest that appraisal processes are worsened by negative emotional states such as anxiety, depression and anger, which occur against a social and cognitive background. Social factors such as being born and raised in the inner city and the influence of ethnicity are related to social adversity and deprivation (i.e. social marginalization, traumatic experiences or unsupportive family environments), which the authors noted may create an enduring cognitive vulnerability in that negative schemas about the self and the world facilitate external attributions of PLE's. The authors

associate negative schemas with emotional distress, which they suggest will contribute to the maintenance of psychotic appraisals. Metacognitive beliefs about uncontrollability will also increase level of distress according to this model. The authors also elaborate that pre-existing negative schemas may influence the content of the appraisals of psychotic experiences. For example, the authors suggested that a person who already holds religious beliefs about inner wickedness may be more likely to draw the conclusion that the external threat brought on by the presence of a PLE is a punishment by God (Garety et al 2001). A negative spiritual appraisal of this kind would therefore lead to increased distress.

While the literature on negative religious coping may help us understand why an individual would react negatively to a situation, it does not explain why an individual would make a negative appraisal. Trauma may be an important precipitating factor to consider. Cottam et al (2011) found that voice hearers reported life-event related stress as a precipitant for hearing voices for the first time, which highlights the stress-vulnerability model for the development of psychotic symptoms. Significant life stress and specifically trauma have been associated with the endorsement of psychotic experiences. Past traumatic experiences not only contribute to the onset of experiences but may also influence the content of psychotic hallucinations and delusions. The effect of trauma on cognitive appraisals has also been well documented (Dunmore, Clark and Ehlers, 1999; Kilcommons & Morrison, 2005; Morrison, Frame & Larkin, 2003; Garety et al 2001; Morrison 2001; Steel, Fowler & Holmes, 2005).

Trauma

Trauma encompasses the subjective experience of any type of event that overwhelms the faculties and is experienced as psychologically injurious (Herman, 1992). Traumatic events overwhelm ordinary adaptations to life including one's physical and emotional integrity (Herman, 1992). The impact of trauma on the psyche may include fear and anxiety, which can lead to symptoms of Post-Traumatic Stress Disorder (PTSD) (Herman, 1992). According to the DSM 5, the diagnostic criteria for PTSD include a history of exposure to a traumatic event with symptoms that are organized into four clusters: intrusion (intrusive thoughts and images, nightmares, distress when reminded of the event and flashbacks), avoidance (avoidance of thoughts situations or images associated with the event), negative alteration in cognitions and mood (detachment from others, restricted range of affect, change in view of self and world) and alteration in arousal and reactivity (sleep disturbance, poor concentration, hyper-vigilance and startle response) (Dalgleish, 2004; APA, 2013).

Many links have been made between PTSD and psychosis given the similarities between some of the symptoms (i.e. flashbacks may take the form of hallucinations and may result in paranoia) (Campbell & Morrison, 2007a; Steel, Fowler & Holmes, 2005). Dissociation has been cited as providing a common link between the two: Trauma-induced dissociative experiences may put individuals at risk for having psychotic experiences, because dissociation undermines the individual's grounding in the outer world (i.e. feeling that one is not connected to her body, and lacks a sense of self or control over her actions) and affects reality testing capabilities (Allen et al 1997; Kilcommons & Morrison, 2005). Morrison Frame and Larkin (2003) noted that both

PTSD and psychosis are characterized by intrusions (i.e. uncontrolled flashbacks or hallucinations), which individuals seek to interpret. The authors focused on the interpretation of the intrusions as contributing to the maintenance of the disorders. Specifically, the interpretation of flashbacks is seen as central to the maintenance of PTSD and culturally unacceptable interpretations of hallucinations and delusional beliefs are implicated in the maintenance of psychosis. The authors also suggest that is it is the cultural acceptability of the intrusions and subsequent interpretations in combination with positive beliefs about psychotic experiences that mediate whether someone is diagnosed with PTSD or psychosis. For example, if someone is distressed by hearing a critical voice and placed the experience in the context of a past abuse experience, she would be diagnosed with PTSD. If she did not offer a connection between her distress and abuse, the individual would be considered to be endorsing a psychotic symptom (Morrison, Frame & Larkin, 2003; Steel, Fowler & Holmes, 2005; Badcock & Hugdahl, 2011).

Trauma is potentially related to psychosis in two ways. The experience of psychosis can be seen as traumatic, resulting in PTSD symptoms (i.e. re-experiencing, hypervigilence, avoidance) Morrison, Frame & Larkin, 2003; Steel, Fowler & Holmes, 2005). Alternatively, psychosis can be a reaction to traumatic experiences or PTSD reactions (Morrison, Read & Turkington, 2005; Kilcommons & Morrison, 2005; Morrison, Frame & Larkin, 2003). As Morrison, Frame and Larkin (2003) noted:

"…some psychotic patients will develop PTSD in response to their psychosis, some people will develop psychosis in the first place as a result of traumatic experiences, some may develop both, and for some people a vicious circle may develop between their psychotic experiences and their PTSD symptoms" (p. 345).

Higher rates of trauma have been found in both clinical and non-clinical groups reporting psychotic symptoms and psychotic-like experiences (Aas et al 2011; Honig et al 1998; Romme & Escher, 1989; Lovatt et al, 2010; Andrew, Gray & Snowden, 2008; Morrison, Frame & Larkin, 2003; Ramsay et al 2011; van Nierop et al 2014). The severity of trauma has been associated to the severity of PTSD and positive psychotic experiences (Kilcommons & Morrison, 2005; Andrew, Gray and Snowden, 2008; Thompson et al 2009). Adverse life experiences, particularly childhood adversity (i.e. sexual abuse, physical abuse, emotional abuse, bullying, parental loss) has been shown to be a risk factor for the development of positive psychotic symptoms in clinical samples and non-clinical psychotic-like experiences in the general population (Bebbington et al 2004; Alemany et al 2011; Janssen et al 2004; Shevlin, Dorahy & Adamson, 2007b; Spauwen et al 2006; Whitfield et al 2005; Kilcommons & Morrison, 2005; Hardy et al 2005; Fisher et al 2010; Lataster et al 2006; Varese et al 2012; Freeman & Fowler, 2009; Heins et al 2011 Kelleher et al 2008; 2013). PTSD symptoms may exacerbate stress such that heightened stress due to distressing intrusions and hyper-arousal could lead to more severe and chronic symptoms of psychosis (Mueser et al 2002; Steel, Fowler & Holmes, 2005). Re-experiencing symptoms of PTSD has been suggested as a mediator between trauma and hallucinations (Gracie et al 2007).

The elevated level of trauma in individuals reporting psychotic experiences has contributed to controversial arguments for a causal link between trauma and psychosis (Morrison, Frame & Larkin, 2003; Read et al 2005; Morgan & Fisher, 2007). This hypothesis has been supported with findings of dose-response relationships between trauma variables and psychosis (Lataster et al 2006; Spauwen et al 2006). Concerns have

been raised about the methodology of the studies linking trauma with psychosis. Issues such as lack of control group and the cross-sectional nature of the studies have been suggested as limitations to the strength of the conclusions made in these studies (Bendall et al 2008; Morgan & Fisher, 2007). Morgan & Fisher (2007) argue that accurate assessment of early traumatic experiences will impact the validity of asserted causal links, citing issues such as recall bias, reliance on patient records, criteria for experiences considered to be traumatic as problematic. Nonetheless, associations between trauma and psychosis continue to be demonstrated, and although the causality of the relationship remains to be determined, the wealth of evidence linking trauma and psychosis has contributed to speculations about the nature of the relationship between the two disorders, with a great deal of research focusing on beliefs.

Specific trauma variables (i.e. type of trauma) influence the occurrence of psychotic experiences as well as beliefs about the experiences. For example, it has been found that interpersonal trauma such as sexual abuse is most predictive of command hallucinations and that trauma with "intention to harm" is associated more strongly with psychotic experiences compared to trauma without "intention to harm" (Freeman & Fowler, 2009; van Nierop et al 2014; Whitfield, Dube, Felitti & Anda, 2005; Read et al 2003; Gracie et al 2007). In their review of the literature on trauma and psychosis, Morrison Frame and Larkin (2003) concluded that traumatic experiences likely contribute to the development of "faulty self and social knowledge" and the nature of appraisals, which influences associated distress and disability. Trauma in the developmental history contributes to explanations of anomalous experiences. The authors give the example that sexual or physical abuse may lead one to believe to believe that the world is dangerous,

that she is vulnerable and that others can't be trusted, which would result in more paranoid interpretations of anomalous experiences. The current literature on trauma and psychosis suggests that incorporating trauma into existing cognitive models of psychosis is important since trauma may create an enduring cognitive vulnerability to psychotic symptoms, characterized by negative schematic models of the self and the world (Bak et al, 2005b).

Cognitive Models of PTSD and Psychosis

The unpredictability of traumatic events produces feelings of intense helplessness, challenging one's beliefs (Brewin & Holmes, 2003). Social Cognitive theories of PTSD consider the role of cognitions and appraisals in the development of PTSD, focusing on how the traumatic event is construed and coped with by a person (Resick, Monson & Chard, 2008). Cognitive theories of psychopathology acknowledge that information is represented in the mind in different ways (Dalgleish, 2004). In general, anxiety is viewed as a result of appraisals relating to impending threat (Ehlers & Clark, 2000). Individuals maintain an ongoing anxiety response to the event long after it has occurred, and their appraisals are partly responsible for the perception of ongoing threat and anxiety (O'Donnell et al 2007). Catastrophic perceptions about oneself, others and the world lead to exaggerated estimates of likely harm and negative outcomes in the future (Bryant & Guthrie, 2005).

In a review of cognitive models of PTSD, Dalgleish (2004) highlights the pervasive change in the individual's view of themselves and the world that can occur following trauma. This change is referred to as a transformation of meaning in which

previous conceptualizations of the world are altered. Traumatic events shatter people's basic beliefs and assumptions that the world is reasonably controllable and predictable and the self is protected. After experiencing a traumatic event, the world becomes meaningless, uncontrollable and unpredictable and the self is threatened with the potential for further trauma (Janoff-Bulman, 2004; Bryant & Guthrie, 2005). Foa et al (1999) described this as two dysfunctional cognitions: the world is completely dangerous and one's self is totally incompetent. Individuals with pre-existing schemas that the world is safe and that they are competent are unable to assimilate the traumatic experience and therefore over-accommodate their schemas about the self and the world. If an individual is better able to discriminate beliefs about their safety and competence, they are able to interpret the trauma as a unique experience that does not forecast their future experience and expectations for the world (Foa et al, 1999).

Dunmore, Clark and Ehlers (1999) identified several factors associated with the onset and maintenance of PTSD including appraisals of the event itself, appraisal of the sequelae of the event, dysfunctional strategies and global beliefs impacted by the event. Other factors included mental defeat (e.g. inability to influence one's fate), mental confusion, negative appraisal of emotions and symptoms, perceived negative responses from others, permanent change, avoidance/safety behaviors, global beliefs and change in beliefs. The authors also noted that some appraisals may directly influence the persistence of PTSD while others may motivate dysfunctional cognitive and behavioral strategies (i.e. suppressing thoughts about trauma which may actually increase intrusions). Detachment during the traumatic event was also identified as a factor, which is related to dissociation (Dunmore, Clark & Ehlers, 1999; Brewin & Holmes, 2003).

One of the most widely referenced models of cognition and PTSD is Ehlers and Clark's model, which suggests that PTSD occurs if individuals process the traumatic event and its sequelae in a way that produces a sense of current threat (Ehlers & Clark, 2000). The determinant of one's sense of current threat is the appraisal of the trauma and the memory of the event and its link to other autobiographical memories. Threat is accompanied by intrusions and other re-experiencing symptoms, symptoms of arousal and other emotional responses. Behavioral and cognitive responses also follow that may serve to reduce the perceived threat, but actually maintain the symptoms. Individuals who are unable to conceptualize the traumatic event as an isolated experience have negative appraisals of the event and its sequelae which create the sense of threat which can be either external (i.e. the world is a dangerous place) or internal (e.g. threat to self-view as a capable/competent person) Ehlers & Clark, 2000; Bryant & Guthrie, 2005; Brewin & Holmes, 2003: Field, Norman & Barton, 2008).

Ehlers and Clark (2000) considered the types of appraisals that could produce a sense of threat which include an overgeneralization of the event, perceiving things as more dangerous than they really are, and over-exaggeration of the probability of further catastrophic events, making statements such as "Bad things always happen to me." The authors also considered the long-term impact of the appraisals one may have about the way one felt during the event. The authors placed negative appraisals into three categories: interpretations of one's initial PTSD symptoms, interpretations of other people's reactions in the aftermath of the event and the appraisal of the consequences that the trauma has in other life domains. The authors identified specific appraisals that individuals may express including appraisals concerning perceived danger (e.g.

"Nowhere is safe"), others violating personal rules/anger (e.g. "Others have not treated me fairly") one's responsibility for the traumatic event (e.g. "It was my fault"), violation of personal standards (e.g. "I did something despicable") and perceived loss and sadness (e.g. "My life will never be the same again") (Ehlers & Clark, 2000).

The severity of PTSD symptoms is correlated with negative cognitions about the self and the world (Field, Norman & Barton, 2008; Bennett, Beck & Clapp, 2009; Nixon & Bryant, 2005). Following a trauma, negative self-appraisals may focus on enduring negative changes to the self, self-blame and the meaning of PTSD symptoms, which play a critical role in the onset and maintenance of traumatic reactions (Karl et al 2009). Specific appraisals of aspects of the trauma itself may influence threatening beliefs. Those who interpret their emotional responses as signs of being unstable or out of control may experience emotions following the trauma as a threat to their self-view and may fear that they will break down if they encounter any frightening or stressful events in the future (Dunmore, Clark & Ehlers, 1999). The role of pre-existing cognitive schemas has also been considered to assess whether those who may already think catastrophically may be more or less likely to employ negative appraisals to traumatic events (Bryant & Guthrie, 2005). Cognitive models propose that a cognitive style that involves negative appraisals will predispose people to respond to a traumatic event with PTSD because of their predisposition to engage in appraisals that exaggerate the sense of trauma and ongoing threat.

Cognitive approaches to understanding the link between trauma and psychosis posit that adverse life events contribute to the development of beliefs about psychotic experiences (Kilcommons & Morrison, 2005; Morrison, Frame & Larkin, 2003; Garety et

al 2001; Morrison 2001). Steel, Fowler & Holmes (2005) suggest that in the context of trauma, the experience of threat and humiliation, especially at an interpersonal level, may lead to the emergence of negative beliefs about the self and others. Early trauma may increase the risk of maladaptive appraisal of anomalous experiences, resulting in psychotic symptom formation. This relationship may be mediated by a decrease in internal locus of control, which has been found to be an independent risk factor for psychotic-like symptoms leading to psychotic disorder (Bak et al 2005). Persisting effects of trauma (i.e. unresolved trauma) may influence the interpretations of the malevolence, benevolence and omnipotence of psychotic experiences such as voice hearing (Andrew, Gray & Snowden, 2008). Morrison, Frame & Larkin (2003) suggest that the shattering of assumptions (i.e. the world is a safe place), which occurs in the context of trauma, may increase the likelihood of developing culturally unacceptable interpretations of events.

Trauma may serve as a precipitating or maintaining factor in the distress (i.e. anxiety and depression) associated with psychosis (Larkin & Morrison, 2006). Andrew, Gray and Snowden (2008) suggested that beliefs about malevolence and omnipotence, which are influenced by trauma, are more predictive of depression and anxiety than the actual trauma. According to Birchwood et al (2000), early traumatic life events and relationships may lead to a sense of subordination, resulting in reductions in perceived control and the experience of voices being more powerful, which leads to greater distress. Negative beliefs about the self may facilitate external attributions of psychotic-like experiences, which may lead to paranoid ideation and distress (Alemany et al 2011; Campbell & Morrison, 2007; Gracie et al 2007; Morrison 2001; Garety et al, 2001). Interpretations of madness (i.e. “I must be going crazy”) may also influence distress

levels (Morrison, Frame & Larkin, 2003). Read et al (2005) suggested that the propensity to interpret anomalous experiences in a distressing way might be explained be a heightened sensitivity to stress in general as a result of traumatic experiences.

Hardy et al (2005) suggested that traumatic memories might be involuntarily retrieved by way of stimuli associated with the trauma and manifest as re-experiencing symptoms, which may be interpreted through negative schematic beliefs. For example, physical sensations related to the memory of sexual abuse may be given an externalizing appraisal such that the individual feels as if a malevolent spirit is attacking him or her. Appraisals affect not only one's perception of the traumatic event in the moment, but it also impacts their memory (Ehring, Ehlers & Glucksman, 2008; Brewin & Holmes, 2003; Dunmore, Clark & Ehlers, 1999; Ehlers & Clark, 2000). Appraisal biases the recall of events such that individuals selectively retrieve information that is consistent with their appraisals (Ehlers & Clark, 2000). Appraisals may influence individuals to engage in strategic behaviors such as avoidance and thought suppression in order to compensate for the perception of threat (i.e. pushing recollections out of mind if the appraisal of intrusions means the individual is losing her mind) Avoidant behaviors may increase other maladaptive behaviors that are related to avoidant strategies such as poor concentration, irritability and alienation (Ehlers & Clark, 2000).

Meaning Making and Post Traumatic Growth: Positive Appraisals?

The vast majority of the literature on appraisals focuses on negative appraisals and the risk for negative outcomes as a result. It is recognized that not everyone develops PTSD. For some individuals, traumatic events, though devastating may be interpreted in

a positive way, such that they are able to assign meaning to them that transforms them instead of leaving them feeling powerless and vulnerable to threat. Park & Ai (2006) described global beliefs (e.g. notions about fairness, control, predictability, etc.) about the world which create the core schemas through which individuals interpret their experiences of the world, recognizing that the extent to which appraised meaning is discrepant from global meaning determines the level of distress one may experience following a traumatic event. The authors focused on meaning making, which is understood as the way an individual comes to see or understand the situation in a different way that allows her to reform beliefs and regain a sense of control and consistency (Park & Ai, 2006: Park, 2010). Those who are able to make meaning of their traumatic experience have processed the event, emotionally engaging with the memory and reframing the experience to see it in a more acceptable way. As a result, they are able to reorient their lives, establish priorities, experience more intimacy in relationships and handle stress better (Park & Ai, 2006: Park, 2010).

Post traumatic growth, which refers to positive changes in the aftermath of trauma, is another form of meaning making that is related to appraisals (Shaw, Joseph & Linley, 2005). The concept developed by Tedeschi and Calhoun (1996) considers the potential beneficial experiences that may follow a traumatic event, including new possibilities, relating to others, personal strength, spiritual change, and appreciation of life. Janoff-Bulman (2004) identifies three models of posttraumatic growth, including strength through suffering, psychological preparedness, and existential re-evaluation. Both posttraumatic growth and meaning making describe coping processes that involve working through and revising negative appraisals that may have already been in place

following the event. It may be possible for an individual to have a less negative or even positive appraisal of a traumatic event, or at least interpret a negative event in a more positive way. Due to the overwhelming experience of trauma it may be less likely that individuals would make positive appraisals of the traumatic event, but understanding the factors that may make someone more or less likely to hold onto negative appraisals may help to identify what factors contribute to vulnerability to more negative outcomes following trauma or psychotic experiences.

Impact of Trauma on Spiritual Beliefs

The experience of trauma often sets individuals on a quest to find a new sense of meaning and purpose in their life. For many individuals, spirituality offers a means of coping and making sense of traumatic events, which can be helpful or harmful (Hayward & Krause, 2015; Peres et al, 2007; Harris et al 2007; Falsetti, Resick & Davis; Pargament, 2002; Overcash et al, 1996; Exline, Yali & Lobel, 1999). Spirituality helps individuals to interpret life events, giving them meaning and coherence, which may facilitate psychological integration of traumatic experiences (Koenig, 2006). Spirituality has been found to be beneficial in the aftermath of trauma, leading to a deepening of spiritual beliefs, positive religious coping, readiness to face existential questions, increased religious participation and intrinsic religiosity. Spiritual beliefs and practices may also reduce feelings of loss of control and helplessness, provide a cognitive framework that decreases suffering, strengthen one's sense of purpose and meaning in the face of the trauma and provide a worldview that gives purpose and meaning to the suffering over and above hope and motivation (Shaw, Joseph & Linley, 2005; Peres et al, 2007). Positive religious coping for example, includes benevolent reappraisal (i.e. lesson

from God), seeking spiritual support (i.e. comfort and reassurance through God's love and care, active religious surrender (i.e. putting what can't be done in God's hands) and seeking spiritual connection and direction (Peres et al, 2007; Pargament, 2004). Overcash and her colleagues (1996) suggested that spirituality is resilient to the accommodation of more negative assumptions that typically occurs in trauma such that their beliefs are reframe (i.e. God has a plan) or are held with even stronger conviction.

Despite the evidence that spirituality serves as a buffer to distress and provides a means of coping, there is evidence that trauma can lead to negative coping and lead to more negative outcomes for spiritual individuals. Spiritual beliefs and assumptions in a benevolent and omnipotent God may be threatened after a traumatic experience, leading to an existential crisis (Exline, Yali & Lobel, 1999; Harris et al, 2007). Some individuals become angry at God, finding it difficult to forgive God, and feeling alienated from God which results in more negative emotion (Exline, Yali & Lobel, 1999). Trauma survivors may have a difficult time with making a new spiritual meaning and this may lead to more distress. As individuals attempt to make sense of the world after a trauma, they may wonder why God would allow something bad to happen to them, concluding that they did something to deserve it, losing faith in God. The meaning making process is related to coping strategies. Negative religious coping includes sentiments such as being dissatisfied with spiritual leaders or one's relationship with God, feeling abandoned, questioning God's love, interpreting the experience as an act of the Devil or a punishment from God, passively waiting for God to change the situation Negative coping has been associated with a number of negative outcomes including higher levels of distress and

PTSD (Hayward & Krause, 2015; Pargament et al, 2002; Harris et al 2007; Peres et al 2007; Falsetti, Resick & Davis, 2003).

A Mediation-Moderation Model

The cognitive model outlined by Garety et al (2001) suggests that cognitive appraisals of psychotic experiences inform subjective levels of distress, which is a significant indicator of whether psychotic experiences are symptomatic or not. A recent investigation of cognitive appraisals conducted by Brett et al (2014) found that spiritual appraisals were protective against distress, highlighting the impact that spirituality has on the appraisal process and consequently, levels of distress. Although spirituality may be protective against distress, the literature also suggests that spiritual individuals may make negative appraisals that result in distress. A history of trauma contributes to a cognitive vulnerability that facilitates negative schematic models of self and the world, which lead to more distress (Garety et al, 2001, Lovatt et al 2010; Brett et al, 2014).

Given the associations between spirituality and psychotic experiences, this study identified spirituality as a potential predictor of appraisals (i.e. meaning) among individuals who endorse anomalous experiences. Spirituality is associated with both the type (i.e. spiritual, psychological, biological, etc.) and the valence of the appraisal of an anomalous experience. The valence of the appraisal has multiple indicators, including the emotional response (distressing or pleasurable), and whether the experience is thought to be positive or negative. In this model, spirituality provides individuals with a context to place their anomalous experience. Spirituality also allows them to make positive appraisals (i.e. God is talking to me and that is ok because my spirituality allows me to be

open to such experiences, or even seek them out). Spirituality also provides individuals with a cultural framework of understanding that may allow them access to a community in which they can share their experiences and have them validated. A positive spiritual appraisal would be protective, resulting in little to no distress. Negative appraisals may be explained by a trauma history. Past trauma may be a predisposing factor for negative appraisals (i.e. powerful, controlling, scary, dangerous), with externalizing content in particular, which would result in subjective distress. As such, trauma is considered as a moderator of the relationship between spirituality and the valence of cognitive appraisals for spiritual individuals. In this way, trauma would reverse the direction of a positive spiritual appraisal, making it less positive, and therefore more likely that a spiritual person with trauma exposure makes a negative spiritual appraisal (i.e. the devil is trying to possess me). A negative spiritual appraisal would contribute to feelings of worry and result in higher levels of distress.

This conceptual model is illustrated below:

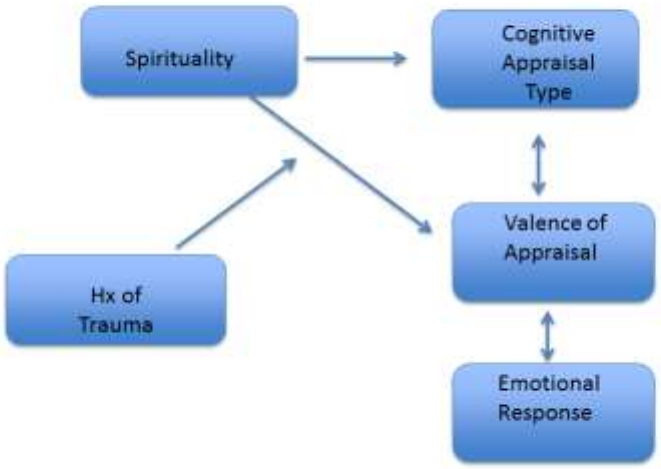


Figure 2: Conceptual model: Spirituality is related to both the type and valence of cognitive appraisals among individuals who endorse anomalous experiences. In this model, the relationship between spirituality and the valence of appraisals is mediated by the appraisal type (i.e. spiritual, psychological, etc.) of the experience. The type of appraisal is associated with the valence of the appraisal. The emotional response to the experience is an aspect of the appraisal process such that the emotional response is associated with the valence of the appraisal. The type and emotional response are bi-directionally associated to the valance as they each influence each other. This model proposes that highly spiritual individuals are more likely to make spiritual appraisals of their experience. Spiritual individuals will also be more likely to make positive appraisals. The relationship between spirituality and the valence of cognitive appraisals is modified by the presence of trauma, such that those who are highly spiritual with a trauma history will use more negative spiritual appraisals.

Rationale for the Study

This study aims to explore the relationship between spirituality and the type and valence of cognitive appraisals (type and valence) among individuals who endorse anomalous experiences. The relationship between spirituality and the valence of appraisals will be modified by the experience of trauma. The associations between spirituality and cognitive appraisals among individuals who endorse psychotic experiences have important implications for understanding the influence of culture in the experience of psychotic symptoms, which in turn, may inform the assessment and treatment of individuals who may be prone to psychotic experiences. Exploring past trauma as a predisposing factor for negative schemas is a much-needed contribution to our understanding of negative spiritual appraisals. Understanding the mechanisms that inform the valence (malevolence vs. benevolence) of spiritual appraisals of psychotic like experiences will help identify the types of individuals who may be distressed by their psychotic symptoms, allowing us to intervene before the symptoms become clinically significant. In order to capture the complexity of the relationships between spirituality, trauma and cognitive appraisals in the context of psychotic experiences, it would be important to understand the subjective experience of individuals who endorse psychotic-like experiences.

Aims and Hypotheses

This study has the following aims and hypotheses:

Aim 1: To determine whether spirituality is associated with cognitive appraisals of anomalous experiences.

Hypothesis 1: Among those who endorse anomalous experiences, individuals with higher levels of spirituality will be more likely to make spiritual appraisals of their anomalous experiences.

1a: Family spirituality will influence appraisals, such that highly spiritual individuals will be more likely to report a family influence on the spiritual appraisals they make of their anomalous experiences.

Hypothesis 2: Among individuals who endorse anomalous experiences, individuals with higher levels of spirituality will be more likely to make positive appraisals of their experience.

Hypothesis 3: Highly spiritual individuals will be more likely to make positive spiritual appraisals.

3a: Highly spiritual individuals who make positive spiritual appraisals will be more likely to report positive emotional responses to their experience.

Aim 2: To determine whether trauma modifies the relationship between spirituality and appraisals.

Hypothesis 4: Trauma moderates the relationship between spirituality and the valence of cognitive appraisals. Specifically, highly spiritual individuals will be

more likely to make negative appraisals of their anomalous experience in the context of trauma exposure.

Hypothesis 5: Highly spiritual individuals will be more likely to make negative spiritual appraisals of their experience in the context of trauma exposure.

> **5a:** Highly spiritual individuals who make negative spiritual appraisals of their experience will be more likely to report negative emotional responses (i.e. distress) to their experience in the context of trauma exposure.

CHAPTER 2: METHODS

Introduction

The previous chapter explored the factors that determine the clinical significance of psychotic-like experiences including those factors that mediate the transition from non-clinical psychotic-like experiences to clinical psychotic symptoms. This exploration highlighted a number of factors, including frequency, externality and distress as indicators of psychotic symptomatology. Efforts to understand the phenomena of anomalous experiences have highlighted cognitive appraisals as a significant mediator of the distress associated with psychotic-like experiences. Spirituality was offered as a cultural factor that informs both the type and valence of the appraisal, introducing trauma as another variable that shapes whether strong spirituality is associated with more negative appraisals.

This study aims to explore the relationships between spirituality, trauma and cognitive appraisals associated with psychotic like experiences. The sample will be drawn from a cohort of individuals who previously participated in a study exploring the socio-cultural risk factors (i.e. discrimination, immigration, ethnic identity) for the endorsement of psychotic-like experiences in an urban college sample (Anglin et al, 2014). A portion of this sample was clinically assessed during the follow up phase. Preliminary analyses of the data from this study yielded the following results:

1. A significant proportion (18%) of the sample (N=644) self-reported a high number (8 or more) of psychotic-like experiences as distressing, and this group of high scorers reported more anxiety, depression and trauma than low scorers (Anglin et al, 2014).

2. Trauma was fairly high in the sample (about 75%) and strongly related to psychotic symptoms (Anglin, Polanco-Roman & Lui, 2015).
3. There was a significant negative correlation between frequency of church attendance and the endorsement of distressing psychotic-like experiences in the overall sample ($r=-.081$, $p<.05$) (Isaac & Anglin, 2015).
4. There was also a significant difference between frequency of church attendance between those endorsing more clinically significant distressing psychotic-like symptoms from lower endorsers of such symptoms ($t=2.185$, $p<.05$, specifically, those who attended church more frequently were less likely to endorse distressing psychotic-like symptoms (Isaac & Anglin, 2015).
5. The mean (SD) number of positive psychotic symptoms in the sample is 14 (9).

The results suggest that both trauma and spirituality are associated with distressing psychotic symptoms and that warrants further exploration. The previous chapter highlighted the role of cognitive appraisals in predicting the emotional response to psychotic-like experiences. As such, this study sought to assess cognitive appraisals of psychotic-like experiences, exploring the roles of spirituality and trauma in shaping the meaning and emotional response attached to these experiences.

Study Design

In this correlational, mixed-methods study, associations between the degree of spirituality, appraisals (type and valence) and trauma were explored. Qualitative interviews were used to assess levels of spirituality, psychotic-like experiences and

appraisals of those experiences for individuals who endorsed at least one anomalous experience (i.e. psychic, paranormal, spiritual, etc.). Quantitative measures of psychotic symptoms, spirituality, trauma and general appraisal style were also included.

Procedures

Participants

Recruitment

The present study involved primary data collection. After receiving IRB approval, a portion of the sample was recruited from an existing cohort of ethnically diverse, young adult, college students (aged 18-29) who participated in a study investigating the risk factors associated with the endorsement of psychotic-like experiences, entitled "Social Stressors and Unusual Experiences." Individuals were initially recruited for the social stressors study through the SONA Psychology subject pool at the City College of New York, whose student body is comprised of a multi-ethnic, socio-economically diverse population. Participants completed a battery of self –report measures assessing various factors including psychotic symptoms, trauma exposure, discrimination, depression, etc. using a computerized version of the protocol. The students were invited to provide their contact information in order to be potentially contacted for a follow up study. Individuals who completed the baseline study between 6 months to a year prior were recruited for the present study.

The mean number of positive symptoms endorsed on the Prodromal Questionnaire (PQ; Loewy et al 2005), which is a measure of attenuated positive psychotic like symptoms, in this cohort of individuals was 14 (SD=9). Thirty-five

symptoms endorsed on the PQ was the upper quartile and was selected as the upper limit to avoid outliers. Accordingly, a contact list of individuals who endorsed between 14 and 35 symptoms on the PQ was generated (N=205). These individuals were contacted via email and telephone to determine their eligibility for the study. Three attempts were made for each individual on the contact list before turning to other recruitment methods. Individuals were also recruited via flyers posted around the City College Campus. Interested individuals were instructed to contact the investigator via email or telephone. RA's recorded notes with information about the participants' interest and eligibility for the current study and scheduled appointments for those who were deemed eligible. Inclusion criteria for this study included: individuals between the ages of 18 and 29, who endorsed psychotic symptoms on a measure of psychotic experiences. Exclusion criteria included: inability to speak and understand fluent English and evidence of substance dependence. The screening procedures are described in the next section.

Screening

Potential participants were screened via telephone and asked to answer 6 items from the Inventory section of the Appraisals of Anomalous Experiences Interview (AANEX) (Brett et al 2007). These six items were selected in particular because they most closely reflected the positive symptoms (i.e. hallucinations and delusions) that were of most interest to the investigator. Individuals were instructed to only endorse experiences that they had when they were not under the influence of drugs, medication or alcohol (See Appendix A for the Phone Screen Script). The six items are indicated below:

1. Have you ever had an odd, out of the ordinary experience that you could not explain, such as a vision or out of body experience?
2. Have you had ever had the experience of seeing something that other people couldn't see, or that you later found out was not there?
3. Have you ever had the experience of hearing things, like voices talking, or music playing, when there hasn't been anyone around?
4. Have you ever had experiences of unusual sensations in your body, not created by any obvious physical cause, for example of heat or cold, energy moving, or something entering or passing through your body?
5. Have you had the experience of having spiritual 'insights' or sudden revelations come into your mind, for example about the nature of divine or cosmic principles, or the functioning of society, or other fundamental issues?
6. Have you had experiences in which things in the world around you seemed to contain messages or hints, perhaps in a metaphorical or symbolic way?

Those who endorsed at least one item on the telephone screen were invited for an interview. Specifically, individuals were told they were invited to participate in a study investigating the cultural and clinical meaning of unusual experiences, including how individuals make sense of their experiences. Individuals were invited to complete a 2.5 to 3.5 hour interview which included completion of quantitative measures on a computer.

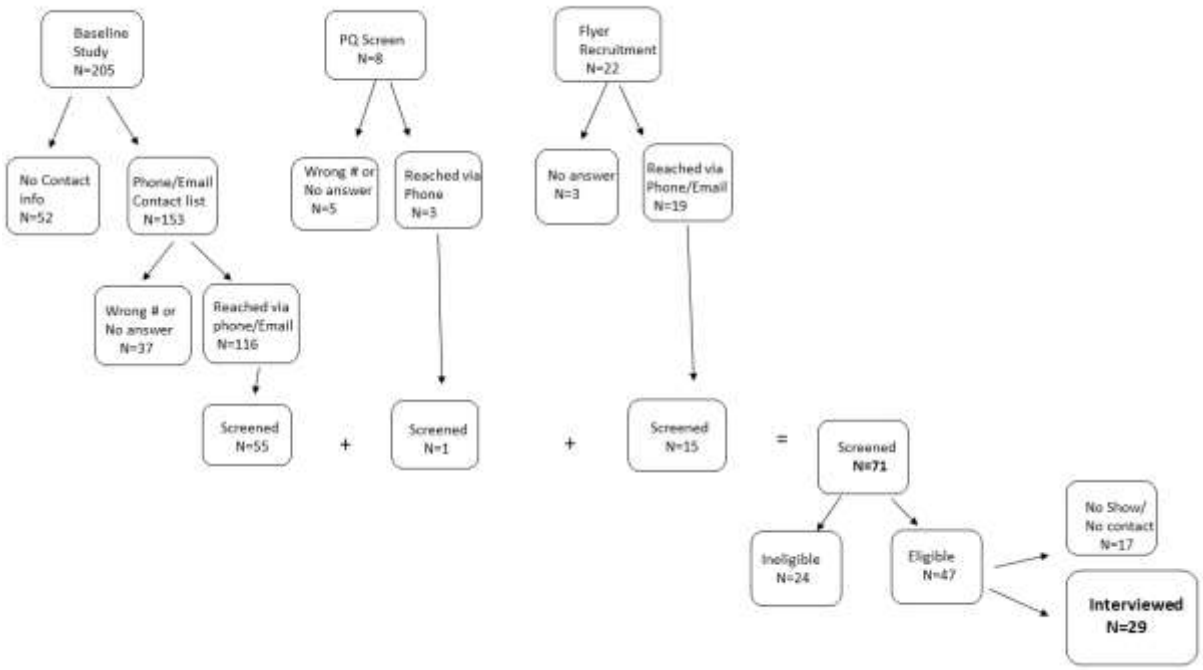
Once recruited and screened for the study, eligible individuals were invited to complete a semi-structured interview that consisted of multiple components. Interviews were conducted at City College in Dr. Deidre Anglin's research lab. Participants provided written consent for the interview to be audio-recorded for analysis purposes. Participants were first asked about their psychotic experiences using the AANEX Inventory (Brett et al 2007), an assessment tool that explores various anomalous experiences. Participants were then asked about their appraisals of each of the experiences they endorsed using the Context and Appraisals section of the AANEX. This component was necessary to be able

to identify current and past symptoms and provided a context for following up about the nature of the experiences endorsed as well as how individuals made sense of those experiences. In the second component of the interview, questions about their spiritual identity and development and the role of spirituality in their appraisals of their anomalous experiences were assessed. After completing the interview, participants were instructed to complete additional quantitative measures on a computerized version of the protocol. All participants who completed the study were paid $40 as compensation for their time.

Recruitment and Response rate

Figure 3 illustrates the recruitment process and outcomes.

Figure 3: Illustration of the recruitment procedures, resulting in a final sample of 29 participants.



Of the 205 individuals who were eligible from the baseline study, 52 did not provide contact information, leaving a pool of 153 individuals to be contacted and screened. A total number of 153 individuals were contacted via phone and/or email. Thirty-seven out of 153 individuals could not be reached due to wrong number or no response. Eight people were recruited who completed the Prodromal Questionnaire (PQ) only as a screening tool for follow up study. These students had not completed the baseline study and were recruited on the CCNY student portal for studies (SONA). Of those eight individuals only one person was successfully contacted and screened. Additionally, flyers were posted around campus to recruit more study participants. A total of 22 individuals responded to the flyers and 15 were contacted and screened. From the various recruitment methods, a total of 71 people were screened and 49 were deemed eligible for the study and invited to come in for an interview. Of those 49 individuals, 15 did not show for scheduled interviews while two others could not be contacted to schedule an interview. Two people were invited for an interview but were discovered to be ineligible due to current substance use. The final sample was 29 participants. A flow chart illustrating the recruitment process is below:

Interview procedures

Three Graduate Research Assistants (GRAs) were hired through a dissertation study grant to conduct the qualitative interviews. These GRAs were oriented to the study and trained on administering the interviews. Assistants observed the principal investigator conduct an interview behind a one-way mirror and were then observed by the Principal Investigator (PI) during their first interviews. Scoring and other interview administration concerns were discussed afterwards to achieve reliability in interview

administration. Due to scheduling conflicts only one GRA was able to commit to interviewing. The PI conducted five interviews. The rest of the interviews (24) were conducted by the GRA. All interviews were audio-recorded and then uploaded to a password protected folder on a computer in the research lab.

Interviews ranged from 58 minutes to 278 minutes (4 hours, 38 minutes) long. The average length of interviews was 123 minutes (2 hours, 3 minutes). Six participants were invited back for brief follow up interviews because their initial interview was incomplete after three hours. They were compensated for the additional time ($25). The study measures are described in the next section.

Measures

Socio-demographic questions

Participants completed a socio-demographic questionnaire based on the demographic face sheet of the Cross Racial Identity Scale (Vandiver et al., 2000; 2002) (See Appendix E). This information is particularly relevant for an ethnically diverse college student population. This section contains questions on demographic information including: gender, age, ethnic background, race and family income. This questionnaire also includes questions about religious affiliation and identification using three questions: 1. What religious affiliation do you hold? 2. How often do you attend religious services? 3. How important is your religion to you?

As family history of mental illness (i.e. psychosis) is a risk factor for psychosis (Yung et al 2004) and substance use is a risk factor for psychotic like experiences (Henquet et al 2005), participants were asked open-ended questions about their family history of mental illness as well as drug/alcohol use during the interview. Individual

psychiatric treatment history was also assessed to rule out previous diagnoses of psychosis given the aim was to assess the experience in a non-clinical sample. They were also asked about traumatic experiences. The questions are below (also in Appendix B):

1. Have you ever seen a psychologist or psychiatrist?
    a. Have you ever been hospitalized for a psychiatric issue?
2. Has anyone in your family ever had any psychiatric issue?
    a. Who?
3. When you drink, how much do you drink?
4. Have you used any drugs (marijuana, cocaine, ecstasy, etc?)
    a. When was the last time you used drugs?

Psychotic Symptoms

The *Prodromal Questionnaire (PQ)* (Loewy et al, 2005) was used to assess the endorsement of symptoms in the psychotic spectrum. This 92-item self-report screen (20 minute completion time) measures prodromal and psychotic symptoms in the positive, negative, disorganized, and general symptom domains, and determines the frequency of symptoms and whether symptoms are distressing. Items on the PQ are anchored to the "prodromal" schizophrenia construct, which is conceptualized as a syndrome identifying imminent risk for psychosis. The items are answered true/false and sum to form four major scales: 1) positive symptoms (unusual thinking, perceptual abnormalities and cognitive disorganization); 45 items, 2) negative symptoms (e.g. flat affect, social isolation); 19 items, 3) disorganized symptoms (e.g. odd behavior); 13 items, and 4) general/affective symptoms (e.g. depression, role functioning); 14 items. Respondents are asked to "Indicate how often you have had the following thoughts, feelings and experiences on average, in

the last month, by circling the appropriate answer on the scale for each item. Do not include experiences while using alcohol, drugs or medications." The items are answered on the following scale, "0-----1-2 times-----once/week-----few times/week-----daily." For each item, respondents indicate whether experiences endorsed greater than zero were distressing, by circling the word "distress" after the item. The PQ has demonstrated moderate correlations with a validated clinical assessment of risk for psychosis syndrome. Forty-five items from the positive symptoms subscale of this measure were used for assessment in this study (See Appendix E).

The measure has demonstrated high internal consistency with cronbach's alpha scores of .92 for the positive symptoms and .96 for the total scale. The PQ is to be used as a screening tool to pre-select individuals for more intensive interviewing (Loewy et al, 2005). Example items include:

"I have heard things other people couldn't hear like voices of people whispering or talking"

"I have had the sense that some person or force was around me, even though I could not see anyone"

"I have thought about beliefs that other people would find unusual or bizarre"

Cognitive Appraisals of Psychotic-Like Experiences

The subjective experience and cognitive appraisal of psychotic-like experiences were assessed in a semi-structured interview (See Appendix B for the full interview protocol).

The Appraisals of Anomalous Experiences Interview (AANEX) (Brett et al 2007) is based on the cognitive model proposed by Garety et al (2001) and assesses phenomenological, psychological and contextual factors surrounding the experience of psychotic-like anomalies. The AANEX has demonstrated good reliability (kappa=.67 and content validity (Brett et al 2007). The first component of the interview measure is the AANEX Inventory, which is a 40 item semi-structured interview that assesses frank psychotic symptoms, anomalies of perception, cognition, affect and paranormal experiences over the lifetime. The present study utilized the 17-item short form of the AANEX (Brett et al 2012) to reduce completion time. Certain experiences of interest (i.e. visual hallucinations, out of body experiences) were not included in this short form version. Thus, three items (Visual anomalies, Out of Body Experiences, Captivation/fixation) were selected from the original 40-item measure and added as supplemental questions to the short form. Participants were also asked to report if there were any other experiences that were not previously mentioned to capture any experiences that did not fit into the selected AANEX items, resulting in a total of 21 items to assess psychotic experiences. During a typical interview, a participant is asked whether they have ever had the experience. If an individual endorses an experience (i.e. affirmative response) the interviewer asks the participant to describe the experience. The description of the experience allows the researcher to rate on a scale of 1 to 3 whether the experience is not present, unclear, or present based on the severity of the experience. The interviewers used the scoring guidelines provided by the creators of the measure (i.e. frequency, not under conscious control) as well as descriptions of anomalous experiences to determine severity and validity of the reported experiences. Those experiences which

received a rating of 3 by the interviewer were assessed for appraisals in the AANEX-CAR. See Appendix C for definitions of the types of experiences from the scoring guidelines of the AANEX inventory.

The second component of the AANEX interview (Brett et al 2007) is the Context, Appraisals and Response (CAR) interview, which is a 34-item semi-structured interview used in conjunction with the AANEX inventory. This interview assesses the appraisals of those experiences endorsed on the inventory, using both open ended questions as well as Likert scale ratings 1 to 5 or 0 to 2. For example, participants are asked "When you had [that experience], what did you think happened?" Open ended questions are followed by Likert scale responses for the assessment of the following factors: situational context and feelings (i.e. social isolation, crisis/impasse, and religious/spiritual practice); framework of interpretation (i.e. biological interpretation vs. spiritual interpretation, positive vs. negative valence and emotional responses (i.e. emotional distress). Behavioral responses (i.e. avoidance vs. immersion response) are rated by the interviewer on a scale of 1 to 5. The variables of interest on the AANEX-CAR included valence (Did you think this experience was a beneficial or bad sign?), negative emotions/distress (Did you have any bad feelings, worries or fears?) and positive emotions (Did you have any good feeling at all?), which were all rated on a scale of 1-5 (none endorsed to all endorsed) for each participant. The type of appraisal made by each participant was rated by the interviewer on a scale of 0 to 2 (no, perhaps, yes) according to the extent to which it met the criteria for 8 appraisal categories (Biological, No Interpretation, Normalizing, Psychological, Spiritual, Other People, Drug Related, and Supernatural). The full AANEX-CAR

interview was administered for each experience that was rated present by the interviewer on the AANEX Inventory.

Cognitive Appraisal Style

Overall attributional style was measured using the *Stress Appraisal Measure (SAM)* (Peacock & Wong, 1990), which was designed as a general measure of cognitive appraisal of stress (See Appendix E). The original 28-item self-report quantitative measure consisted of three primary appraisal scales (e.g. Threat, Challenge and Centrality) and three secondary appraisal scales (e.g. Controllable-by-self, Controllable-by-Others, Uncontrollable-by-Anyone). The measure contained a 7th subscale that is also meant to measure overall perceived stressfulness. Roesch and Rowley (2005) conducted further analyses of the dimensionality of the SAM which resulted in a reduction of the measure by 5 items, leaving a 19-item measure that consists of four appraisal scales (e.g. Challenge, Threat, Centrality, Resources). Challenge appraisals reflect the anticipation of potential gain or growth from the experience; Threat reflects the potential for difficult loss; Centrality reflects the perceived importance of the event for one's well-being; Resources reflects an appraisal of internal resources available to assist in coping (Roesch & Rowley, 2005). The revised 19-item measure allows for the investigation of dispositional appraisal of stressors, with three factors measuring primary appraisal and one factor that measures secondary appraisal. The four-factor model for the measure has demonstrated convergent and discriminant validity with measures of depression, coping and agency, and adequate reliability scores with cronbach's alphas ranging from .68 to .85 (Roesch & Rowley, 2005). Example items include:

"I have the ability to overcome stress" (Challenge)

"I feel totally helpless" (Threat)

"There is someone I can turn to for help" (Resources)

"Stress has a negative impact on me" (Centrality)

Spirituality

The difficulty distinguishing between religiosity and spirituality has complicated efforts to accurately measure the constructs. If combined, one may be missing elements that are central to each. However, completely separating the two may ignore the overlap that exists between religion and spirituality. As the term *spirituality* is being used to capture one's personal connection to the transcendent in this study, it was measured using the *Daily Spiritual Experiences Scale (DSES)*, which is a 16-item self-report scale designed to measure a person's perception of the transcendent (holy, the divine) in daily life (Underwood, 2006; 2011) (See Appendix C). Participants are asked to select the frequency of spiritual experiences on a scale of 1 to 5 (Never to Many times a day). Item 16 of the measure ("In general, how close do you feel to God?" is measured on a 4-point Likert scale ("Not at all" to "As close as possible"). The measure covers constructs such as awe, gratitude, mercy, sense of connection with the transcendent and compassionate love. It also includes measures of awareness of discernment/inspiration and a sense of deep inner peace.

This scale is intended to measure a person's perception and interaction with or involvement of the transcendent in daily life by taking into consideration the individual's experience rather than particular beliefs or behaviors. In this way, the items from this scale attempt to transcend the boundaries of any religion. Although the term "God" is used in the items, individuals are encouraged to replace that word with whichever is most

meaningful to them. The DSES has been used in over 200 published studies and the items have demonstrated high internal consistency with cronbach's alpha scores of .94 and .95. Test-retest results have been reliable, with a test-retest Pearson correlation of 0.85 over two days. This measure has also been validated in an African American sample and has been translated into over 40 different languages (Underwood, 2006; 2011; Underwood & Teresi, 2002).

The DSES focuses on the positive aspects of spirituality (i.e. awe, inner peace, love). Spirituality may also engender negative feelings (i.e. confusion, fear, anger), which may affect coping efforts (Pargament, Smith, Koenig & Perez, 1998). In order to tap into this aspect of spirituality, the *Brief R-COPE* was also used (See Appendix E). The *Brief R-COPE* (Pargament, Smith, Koenig & Perez, 1998) is a 14-item self-report measure that consists of two subscales that measure positive and negative religious coping. The measure was designed to offer an efficient, theoretically meaningful way to integrate religious dimensions into models and studies of stress, coping, and health. The scale has demonstrated internal consistency (cronbach's alpha- .58 to .81). Respondents are asked to describe how they coped with a negative event in their life, indicating to what extent they did for each item. Sample items include: "Looked for a stronger connection with God Felt punished by God for my lack of devotion, Focused on religion to stop worrying about my problems."

The *FICA Spiritual History Tool* (Puchalski, 2006; Puchalski & Romer, 2000) is an open ended spiritual screen that is based on four domains of spiritual assessment: the presence of faith, belief, or meaning; the importance of spirituality on an individual's life and the

influence that belief system or values has on the person's health care decision making; the individual's spiritual community; and interventions to address spiritual needs (See Appendix B). It was designed as an assessment tool for clinicians to learn about the salience of religious and spiritual beliefs. 4 additional questions were added to this measure to capture family history, spiritual development and spiritual appraisals:

1. Is your family religious//spiritual?

a. How do you think your spirituality was influenced or shaped by your family?

2. Have your religious beliefs changed over time?

3. Have you had a significant spiritual experience that was transformative or influential?

4. Have your spiritual or cultural beliefs ever affected how you make sense of any of the unusual experiences we discussed today?

Trauma

Exposure to trauma was assessed using items from the Life Events Checklist (LEC), which is a self-report psychometric scale developed at the National Center for PTSD to assess exposure to potentially traumatic events (PTE's) (Gray et al 2004) (See Appendix E). The 17 LEC items assess for multiple types of exposure to each PTE. The measure requires respondents to rate their experience of that event on a 5-point nominal scale indicating whether (1 = happened to me, 2 = witnessed it, 3 =learned about it, 4 = not sure, or 5 = does not apply). The events from the checklist include items such as: natural disaster, accident, combat, death of loved one, injury/illness of loved one, witness

to family violence, and physical/sexual assault. The LEC has demonstrated 7-day temporal stability at the item and scale level, with kappa coefficients ranging from .38 to .79 for the LEC items. The measure has demonstrated overall stability as a screening measure designed to assess varying levels of PTE exposure and has shown strong convergence with measures of psychopathology that are known to be associated with trauma exposure (Gray et al 2004).

During the interview, participants were also asked an open ended question about their trauma history:

1. Have you ever had a difficult life experience that you would say was traumatic? If yes, would you mind telling me more about it? You do not have to go into detail if you do not feel comfortable.

Data Analysis

Quantitative Analysis

Participants completed the quantitative measures via self-report on a computer. This data was stored in Qualtrics and exported and analyzed in SPSS (Version 24.0). The PI scored and cleaned all quantitative data. Mean scores were derived for the Daily Spiritual Experiences Scale (DSES), the Positive and Negative religious factors of the Brief R-COPE, and the 4 factors of the Stress Appraisal Measure (SAM). Total number of traumatic life events experienced (not witnessed) on the Life Events Checklist (LEC) was summed into a total mean score. Additionally, a total count of positive psychotic symptoms and distressing positive psychotic symptoms on the Prodromal Questionnaire

(PQ) was calculated. The valence, positive emotions, negative emotions (i.e. distress), and spiritual appraisal items of the AANEX-CAR were summed into total mean scores. Since participants reported more than one experience, there were multiple scores for each of these items on the AANEX-CAR, resulting in varying sum scores per person. For this reason, mean scores could not be calculated in SPSS and the PI hand-calculated mean scores for each participant for the appraisal items to account for the disparate item totals. The PI calculated bivariate correlations of the described factors to identify significant associations among the continuous variables within this sample.

Qualitative Analysis

The audio-recorded interview protocols were uploaded to a secure online transcription service accessed through the New York University Online Media stream © (2016), which is a web-based collection of media tools available to staff and students at New York University. This resource was accessed by the GRA who is a student at NYU. These automated transcripts were then reviewed and edited by 2 undergraduate research assistants who used the actual audio recordings to correct for any errors made by the online transcription service.

Analysis of qualitative data involves the exploration and interpretation of un-structured or semi-structured data. One of the methods to interpret data is to develop codes, which are abstract representations of a phenomenon used to identify themes within a text. Coding is the process of organizing and sorting data by labeling and compiling the data (Bazeley & Jackson 2013). This method was selected to analyze the open-ended responses derived from the AANEX-CAR interview and the Spiritual assessment (FICA).

During the transcription editing process, the PI and GRA developed a coding manual, which is a collection of codes with definitions to guide the analysis of the open-ended responses on the AANEX-CAR interview measure (Please see Appendix B for the full manual)**.** The coding manual was developed by selecting a subset of the completed interviews (2) to identify recurrent themes in the interview and identify codes that would be expected to appear in the rest of the sample. Using the scoring guidelines of the AANEX-CAR, the PI derived initial codes which formed the basis of the codes included in the manual. Specifically, the scoring categories from the AANEX-CAR were used as the coding categories in the coding manual. A segment was assigned a specific code if a phrase reflecting that construct was uttered in the open ended response to the query. Below is an example illustrating how scoring categories for the framework of interpretation of the experience in the ANNEX- CAR were changed into codes for inclusion in the coding manual:

AANEX-CAR ----------→	Code
Framework of Interpretation	3.1 Type of Appraisal
Biological	3.1a Biological
Normalizing	3.1b Normalizing
Psychological	3.1c Psychological

The PI and GRA reviewed two of the transcripts and added codes for the specific content of the cognitive appraisals (i.e. puzzlement, efforts to reality test, etc. and spirituality based on themes that emerged during their review of transcripts. The PI and GRA discussed codes to reach a consensus on the codes that would be included in the manual. The coding manual which is described in Appendix D, was reviewed by a qualitative

research expert and determined to be accurate and appropriate for analysis of the rest of the dataset.

The PI trained 2 URAs to learn the coding manual using a sample transcript. One of the interviews used to develop the manual was used to practice coding and discuss any questions or concerns. The URAs were then given a second transcript to score independently. The PI conducted a second training session with the URAs and the GRA. The URAs discussed independent codes and the GRA and PI served as arbitrators to help the group reach consensus on the codes. URAs were allowed to add in any other codes reflecting themes that emerged during their review of the transcripts and were not already captured in the pre-determined codes. Individuals who wanted to make any changes to the manual had to make a case for the inclusion of a new code and this was discussed during consensus meetings. New codes could only be added if all members agreed that this code was accurate.

An alternative to deriving an inter-rater reliability co-efficient is to meet for consensus meetings as described above (Hill et al 2005). Consensus meetings are designed to seek a common understanding of the data while preserving the right to differing worldviews amongst the individual team members (Hill et al 2005). In this study, excerpts used for coding were recorded on a Microsoft Excel document that was shared with all members of the research team. Each of the coders (URAs) had their own tabs where they independently coded the transcripts. Before each consensus meeting, the arbitrators (the PI and GRA) would review each of the independent codes assigned by the coders and identify discrepancies to be discussed with the entire team. Team members provided their rationale for assigning a particular code which was discussed until a

consensus was reached on the appropriate code for the excerpt. To continue to ensure reliability, this process of coding transcripts, and then meeting as a team to discuss codes and reach consensus was repeated until all transcripts were coded and scored. Six consensus meetings were conducted in person or via-phone conference to discuss coding. Below are sample excerpts from selected interviews and the codes that were assigned to them.

"*I have this like, I was,* ***I think I was hypomanic*** *but I wasn't like on medication or anything but uhm. I was at a friend's graduation party and I could…we went for a walk and …on Rockaway Beach and* ***I was like why is every house on this street playing the same radio station.****"*

Codes: 2C- Auditory Hallucination, 3.3a-Confusion/Puzzlement (Why is every house playing…?), 3.3f-Insight (I think I was hypomanic)

"I'd react to both. ***I'd react to it based on the spiritual interpretation*** *but I still like -* ***like I said I still try to find out what exactly is going on. I still try to like you know, see if there's something that's not spiritual.*** *If it's biological, or if it's psychological…"*

Codes: 3.1d-Spiritual interpretation, 3.3a- Confusion/Puzzlement

Once all of the transcripts were coded, a final Excel document with the finalized excerpts and associated codes was generated. The edited transcripts were then uploaded by the PI to NVivo Qualitative Data Analysis Software (Pro version 11). This software is a tool for organizing, managing, querying, visualizing and reporting qualitative data (Bazeley & Jackson, 2013). Once the transcripts were uploaded, the PI entered the codes from the final coding manual into the NVivo software to generate a coding system. In NVivo, the generated codes become part of a bank of potential codes. The PI then selected and assigned codes copied from the final Excel document to the respective

passages in the uploaded transcript text. With NVivo, the PI explored and aggregated the codes to identify meaningful patterns and associations within the data.

CHAPTER 3: RESULTS

Characteristics of the Sample

The final sample consisted of 29 undergraduate students enrolled at the City College of New York. Table 1 reports the demographic characteristics of the sample, including gender, age, race/ethnicity and income. The age of participants ranged from 18 to 27 with 72% being 18 to 21 years old and 28% older than 21 years of age. The majority of the sample identified as female (79%), with a diverse racial/ethnic background (31% Black/African/Caribbean, 21% Asian, 24% Hispanic) and 38% of the sample born outside of the United States. The majority of the sample had a modest family income with 52% reporting an income range of $50,000 or less. Participants' primary language was English (72%) and their subjective English language fluency was high (83%).

Table 1: Demographics.

	N	*%*
Age		
18-21	21	72%
21-25	7	24%
26 or older	1	3%
Gender		
Female	23	79%
Male	6	21%
Income		
Less than $20,000	5	17%
$20,000 to $49,999	10	35%
$50,000 to $69,999	7	24%
$70,000 to $99,999	2	7%
$100,000 or more	5	17%
Race/Ethnicity		
Black/ African/Caribbean	9	31%
Asian/Pacific Islander	6	21%
Hispanic/Latino	7	24%
Biracial/Multiracial	1	3%
Middle Eastern	3	10%
White	3	10%
Were you born in the United States?		
Yes	18	62%
No	11	38%
What is your primary language?		
English	21	72%
Spanish	4	14%
Other	4	14%
How well do you speak English?		
Well	5	17%
Very Well	24	83%

Religion

Table 2 reports the religious characteristics of the sample. Most participants (52%) reported a religious affiliation and 31% reported agnostic or no religious affiliation. In regards to religious practices, 52% of participants reported that they seldom attend religious services, while 17 % reported frequent religious service attendance. A modest number of participants (38%) reported that their religion is very important to them.

Table 2: Religious Characteristics

	N	***%***
How often do you attend religious services?		
Seldom	15	52%
Sometimes	9	31%
Often	5	17%
How important is your religion to you?		
Not Important	11	38%
Somewhat Important	7	24%
Very Important	11	38%
What religious affiliation do you hold?		
Protestant	2	7%
Catholic	5	17%
Islam	5	17%
Buddhist	1	3%
Hindu	4	13%
Non-Denominational	2	7%
Agnostic	3	10%
Sikhism	1	3%
None	6	21%

Table 3 presents the means, standard deviations and ranges of the quantitative research variables in the self-report data. The number of positive psychotic symptoms

endorsed ranged from 0 to 39 (M=19.9, SD=11.2) and the number of distressing positive psychotic symptoms endorsed ranged from 0 to 26 (M=8.1, SD=7.4). Mean (SD) scores were the highest for the challenge (3.5 (0.2) and resources (4.3 (0.6)) factors of general appraisal style. Participants endorsed between 1 and 15 lifetime traumatic events on the Life Events Checklist. The mean (SD) number of traumatic experiences endorsed was 7.2 (4.4).

Table 3: Means of Psychotic Experiences, Spirituality, Trauma and Appraisals Variables

Variable	*M*	*SD*	*Min (Sample)*	*Max (Sample)*	*Min*	*Max*
Psychotic Experiences						
Positive PQ symptoms	19.9	11.2	0.0	39.0	0.0	45.0
Distressing Positive PQ symptoms	8.1	7.4	0.0	26.0	0.0	45.0
Cognitive Appraisals						
Challenge	3.5	0.9	1.7	5.0	1.0	5.0
Threat	2.6	0.8	1.0	4.4	1.0	5.0
Resources	4.3	0.6	2.7	5.0	1.0	5.0
Centrality	2.5	1.0	1.0	5.0	1.0	5.0
Spirituality						
Daily Spiritual Experiences	3.0	1.3	1.0	5.9	1.0	6.0
Positive Religious Coping	2.2	1.0	1.0	4.0	1.0	7.0
Negative Religious Coping	1.7	0.9	1.0	4.0	1.0	7.0
Trauma						
LEC item endorsement	7.2	4.4	0.0	15.0	0.0	17.0

Characteristics of participants from Interview data

The number of experiences endorsed on both components of the AANEX interview varied by participant, resulting in multiple response sets. Specifically, each

AANEX-CAR interview was anchored to a particular experience endorsed by the participant and rated present by the interviewer. The number of response sets in the sample ranged from 1 to 10, with a mean number of 2.34 experiences endorsed.

Demographic data was also collected in the interview segment of the study. Table 4 reports select characteristics of the interview participants, including age, gender, family history of mental illness, individual treatment history, trauma exposure and spiritual identity. Seven participants reported mental health treatment, and eight participants reported family history of mental illness (2 of 8 reported family history of schizophrenia). Of the 29 participants in the study, 25 participants reported a lifetime traumatic experience (86%). The most frequently reported experience was traumatic grief associated with the loss of a family member or separation (49%), accidents or medical illness (17%) and physical and sexual abuse (10%).

Table 4: Attributes of the Participants

Participant	Gender	Age	Psych Treatment Hx	Family Hx of Mental Illness	Trauma Hx	Spiritual Identity
01	Male	22	No	No	No	Agnostic
02	Female	22	No	No	Yes	Spiritual (Hindu)
03	Female	23	Depression, Anxiety, Borderline PD, ADD	Substance Abuse	Yes	Agnostic
04	Male	18	Depression, Substance Abuse	No	Yes	Agnostic
05	Female	19	No	No	Yes	Questioning
06	Female	19	Depression	Depression, Anxiety	Yes	Spiritual (Catholic)
07	Male	19	No	No	Yes	Religious
08	Female	20	No	Schizophrenia	Yes	Questioning (Christian)
09	Female	27	Depression, PTSD	No	Yes	Questioning
10	Female	19	"I saw a counselor"	No	Yes	Spiritual (Sikh)
11	Female	19	No	No	Yes	Agnostic
12	Male	21	No	"Mental breakdown"	Yes	Religious (Muslim)
13	Female	25	Depression, Substance Abuse	Bipolar Disorder	Yes	Spiritual
14	Female	19	No	No	Yes	Religious (Muslim)
15	Male	19	No	No	Yes	Religious (Buddhist)
16	Female	20	No	No	No	Religious
17	Male	18	No	No	Yes	Religious (Hindu)
18	Female	19	No	No	Yes	Agnostic
19	Female	19	No	Dementia, Depression	Yes	Religious (Hindu/ Buddhist)
20	Female	22	No	Schizophrenia	Yes	Questioning
21	Female	21	No	No	No	Religious (Christian)
22	Female	24	No	No	Yes	Spiritual
23	Female	21	No	"It's not been diagnosed"	Yes	Spiritual (Christian)
24	Female	21	No	No	Yes	Questioning
25	Female	25	No	No	Yes	Spiritual
26	Female	21	ADHD, Anxiety	No	No	Religious (Catholic)
27	Female	21	No	No	Yes	Religious
28	Female	18	No	No	No	Spiritual
29	Female	21	No	No	Yes	Religious

Spirituality

Spirituality was common in the sample, with 56% of participants identifying as spiritual or religious: 38% of participants identified as religious (n=11), 28% as spiritual/spiritual but not religious (n=8), 17% as agnostic (n=5) and 17% as questioning (n=5). Those who identified as religious (n=11) were considered to be high in spirituality as they tended to report higher church attendance (31%), religious practices such as prayer (34%) and reported a strong family influence on their spirituality (38%) compared to the overall sample. Those who identified as spiritual, but not religious (n=8) reported less religious practices such as church attendance (14%) while little to no religious practices were reported for those who identified as agnostic (3%) and questioning (3%) compared to the overall sample. Individual moral or spiritual values were endorsed across all spiritual categories (86%). Religious participants had the highest number of individuals citing these values (31%) followed by spiritual participants (24%), agnostic participants (17%) and questioning participants (17%) compared to the overall sample.

Quantitative Inferential Results

This next section reports the inferential results testing the proposed hypotheses with the variables of interest within the self-report data and the scale responses from the AANEX-CAR interview. Bivariate Pearson correlation coefficient analyses were conducted to identify significant associations between the variables. Analyses found moderate, though significant associations between the variables at both one-tailed and two-tailed levels.

Aim 1: to determine whether spirituality is associated with cognitive appraisals of anomalous experiences.

Hypothesis 1: Among those who endorse anomalous experiences, individuals with higher levels of spirituality will be more likely to make spiritual appraisals of their anomalous experiences.

The hypothesis that highly spiritual individuals would be more likely to make spiritual appraisals was not supported by the self-report data. Although spiritual identity was not associated with spiritual appraisals, religious coping, an aspect of spirituality, was associated with cognitive appraisal style as well as with spiritual appraisals. There was a strong positive association between spirituality and positive religious coping ($r=.935$, $p<.01$). Spiritualty was also positively associated with negative religious coping ($r=.591$, $p<.01$). There were moderate associations between negative religious coping and factors of the overall appraisal style measure: Negative religious coping had moderate negative association with the resources factor of the stress appraisal measure ($r=-.418$, $p<.05$) and a moderate negative association with spiritual appraisals ($r=.400$, $p<.05$).

Hypothesis 1a: Family spirituality will influence appraisals, such that highly spiritual individuals will be more likely to report a family influence on the spiritual appraisals they make of their anomalous experiences.

This hypothesis could not be formally tested with the self-report data, since family spirituality was not assessed via self-report.

Hypothesis 2: Among individuals who endorse anomalous experiences, individuals with higher levels of spirituality will be more likely to make positive appraisals of their experience.

Spiritual identity was not significantly associated with the valence of appraisals. Thus, the hypothesis that higher levels of spirituality would be associated with positive appraisals was not supported by the self-report data.

Hypothesis 3: Highly spiritual individuals who make spiritual appraisals will be more likely to rate their experience as positive.

3a: Highly spiritual individuals who make positive spiritual appraisals will be more likely to report positive emotional responses to their experience.

Both hypotheses could not be formally tested with the self-report data due to the small sample size. Bivariate analyses in the overall sample did find a strong positive association between the valence of appraisals and positive emotions: The valence of appraisals on the AANEX-CAR was positively associated with positive emotions ($r=.603$, $p<.01$). Spiritual appraisals were positively associated with positive emotions ($r=.416$, $p<.05$) though this was a moderate association.

Aim 2: To determine whether trauma modifies the relationship between spirituality and appraisals.

Hypothesis 4: Trauma moderates the relationship between spirituality and the valence of cognitive appraisals. Specifically, highly spiritual individuals will be more likely to make negative appraisals of their anomalous experience in the context of trauma exposure.

Due to the small sample size and the fact that the majority of the sample (86%) reported a history of trauma, this moderation effect could not be formally tested.

Hypothesis 5: Highly spiritual individuals will be more likely to make negative spiritual appraisals of their experience in the context of trauma exposure.

Due to the small sample size and the fact that the majority of the sample (86%) reported a history of trauma, this moderation effect could not be formally tested. However, in the overall sample, the valence of appraisals on the AANEX-CAR was negatively associated with the centrality factor of the stress appraisal measure ($r=-.378$, $p<.05$) though this was a moderate association.

Hypothesis 5a: Highly spiritual individuals who make negative spiritual appraisals of their experience will be more likely to report negative emotional responses (i.e. distress) to their experience in the context of trauma.

Due to the small sample size and the fact that the majority of the sample (86%) reported a history of trauma, this moderation effect could not be formally tested. However, the experience of trauma was associated with distressing psychotic experiences and appraisal style. Specifically, distressing psychotic symptoms as assessed on the self – report Prodromal Questionnaire were positively associated with the number of traumatic events ($r=.429$, $p<.05$). This was a moderate association. The threat ($r=.526$ $p<.01$) and

centrality (r=.560, p<.01) factors of the stress appraisal measure were positively associated with distressing psychotic symptoms. Distressing psychotic symptoms were positively associated with negative emotions (r=.418, p<.05) and this was a moderate association. There was a strong negative association between negative emotions and the valence of appraisals (r=-.648, p<.01).

Table 5 provides a summary of the bivariate correlational analyses. The small sample size limits the predictive value of the reported associations; however, these findings do create a basis for further exploration of these variables in the qualitative portion of the study.

Table 5: Correlations among the Variables, *p<.05, **p<.01

	PQ	Trauma	Threat	Centrality	Challenge	Resources	(+) Coping	(-) Coping	Spirituality	Spiritual Appraisals	(-) Emotions	(+) Emotions	Appraisal Valence
PQ	-----	**.429***	**.526****	.560**	-.305	-.350	-.130	.046	-.170	.083	**.418***	-.159	**-.303**
Trauma	**.429***	-----	.164	.317	-.096	-.245	-.090	.034	-.072	.103	.118	-.119	**-.061**
Threat	**.526****	.164	-----	**.768****	**-.589****	-.047	.030	.079	.003	-.001	.254	-.126	**-.222**
Centrality	**.560****	.317	**.768****	-----	**-.541****	-.107	-.075	.158	-.114	-.187	.355	-.149	**-.378***
Challenge	-.305	-.096	**-.589****	**-.541****	-----	**.416***	.080	-.100	.116	0.41	-.013	-.045	**.074**
Resources	-.350	-.245	-.047	-.107	**.416***	-----	-.252	**-.418***	-.202	.050	-.166	1.48	**.172**
(+) Coping	-.130	-.090	.030	-.075	.080	-.252	-----	**.666****	**.935****	.207	-.062	.147	**-.087**
(-) Coping	.046	.034	.079	.158	-.100	**-.418***	**.666****	-----	**.591****	**.400***	-.202	.219	**.023**
Spirituality	-.170	-.072	.003	-.114	.116	-.202	**.935****	**.591****	-----	.238	-.097	.095	**-.076**
Spiritual Appraisals	.083	.103	-.001	-.187	.041	.050	.207	**.400***	.238	-----	-.126	**.416***	**.345**
(-) Emotions	**.418***	.118	.254	.355	-.013	-.166	-.062	-.202	-.097	-.126	-----	**-.558****	**-.648****
(+) Emotions	-.159	-.119	-.126	-.149	-.045	.148	.147	.219	.095	.416*	**-.558****	-----	**.603****
Appraisal Valence	-.303	-.061	-.222	**-.378***	.074	.172	-.087	.023	-.076	.345	**-.648****	**.603****	-----

Qualitative Findings:

A qualitative analysis was initiated for a more detailed and in-depth analysis of the appraisals of psychotic-like experiences. The reported associations identified via the self-report measures were further elucidated through an exploration of the specific content of appraisals as assessed by the ANNEX-CAR interview. In this section, the hypotheses are tested through descriptive data reflecting patterns of endorsement within the sample. These patterns are highlighted with illustrative text from the participant interviews.

Descriptive Data

Types of Experiences

Table 6 reports the number of experiences endorsed, the experiences assessed for appraisals (at the discretion of the interviewer based on severity of the description) and types of experiences endorsed by each participant.

Table 6: Types of Experiences by Participant

Participant	#of Experiences Endorsed	# of Experiences Queried	Types of Experiences Reported
01	8	1	Visual Hallucination
02	12	2	Visual Hallucination, Insight Experience
03	9	5	Auditory Hallucination, Depersonalization, Visual Hallucination, Somatic Anomaly, Precognition
04	9	2	Auditory Hallucination, Visual Hallucination
05	11	2	Visual Hallucination, Paranoia, Dissociation
06	10	3	Auditory Hallucination, Somatic Anomaly, Visual Hallucination
07	9	2	Visual Hallucination, Auditory Hallucination
08	10	2	Somatic Anomaly, Visual Hallucination
09	8	3	Visual Hallucination, Precognition, Out of Body Experience
10	13	2	Auditory Hallucination, Visual Hallucination
11	17	10	Thought Blocking, Auditory Hallucination, Visual Hallucination, Somatic Anomaly, Captivation, Out of Body Experience, Dissociation
12	8	1	Visual Hallucination
13	15	1	Auditory Hallucination
14	6	1	Visual Hallucination
15	7	2	Spiritual Elation, Reference Experience
16	5	2	Visual Hallucination, Precognition
17	8	1	Somatic Anomaly
18	11	3	Auditory Hallucination, Visual Hallucination, Paranoia
19	10	2	Visual Hallucination, Insight Experience
20	11	6	Visual Hallucination, Auditory Hallucination, A/VH (both), Somatic Anomaly, Spiritual Elation
21	9	3	Auditory Hallucination, Dissociation,
22	6	2	Thought Blocking, Dissociation
23	3	2	Precognition, Visual Hallucination
24	10	1	Visual Hallucination
25	5	4	Visual Hallucinations, Somatic Anomaly, Out of Body Experience
26	3	2	Visual Hallucination, Auditory Hallucination
27	2	1	Visual Hallucination
28	2	2	Precognition, Visual Hallucination
29	8	1	Visual Hallucination, Somatic Anomaly

Auditory and Visual hallucinations were the most frequently endorsed experiences with 24 out of 29 participants (83%) reporting at least one visual hallucination and 23 out of 29 participants (79%) reporting at least one auditory hallucinatory experience. 35% of participants reported at least one experience of spiritual elation (i.e. state of "grace," or feeling of extreme content and peace). Three participants (10%) reported an out of body experience. Two participants (7%) reported experiences of paranoia or hypervigilance. The rest of the experiences (i.e. receptivity, passivity, reference experiences, and captivation) were only endorsed by one participant each. One participant reported an experience of being locked in a room by a "force."

Table 7 provides representative excerpts from the interviews of participants to illustrate the most frequently endorsed experiences

Table 7: Examples of Experiences endorsed

#of Participants N=29	Type of Experience	Example Excerpt (s)
23	Auditory Hallucination	"Um, it's rare but it doesn't- like I've heard the- like someone would like, I hear my voice- ,my name being called. That was rare and happened only few times but I would hear the gate and stuff move. Like I'd hear the sounds of the gate all the time but the gate's not moving." "Happens all the time. I think I hear my name or I think I hear a song playing or I think I hear someone coming in my house like I think I hear the door opening and closing, or the window opening and closing or I hear someone coming in announcing that they're home, it happens all the time. All the time" "Yeah I was about to go into the elevator cause I was heading to school, and right when I closed my door and I was about to press the button for the elevator, had my music on really loud, and I just heard, _____, like right in my ear."
11	Depersonalizatio n/Derealization/ Dissociative Experience	"Yeah or sometimes I'll just be sitting and I'll be in very very deep thought. And I just feel like - like my body's like - like I'm sitting here but like I don't know - like my soul or my inner self is just like radiating outwards. Like I feel like something's leaving from me." "Oh I don't remember the most recent one, but generally - generally I mainly just feel - like I feel like I'm not a part of my body" "And I was like sitting in.. uhh.. and I felt like I was in a dollhouse. Kind of?"
16	Somatic Anomaly	"Errrrr like my back...It will feel l like something is running down into my leg ....all the way up to my...all the way down to my knee...like errr kinda like cold fluid...like all the way from my lower back to all the way to my knee...weird sensation..." "So then I've seen that like at times when I am practicing Reiki I can feel my hands either getting extremely extremely hot and like we believe that's because you are like you are channeling this energy to your hands, which you're using to heal others. It's basically a form of touch therapy uhm and like other times I felt like a lot of like vibrations within my hand while I'm trying to heal others."
10	Spiritual Elation	"Um, so when I do meditate, you know, you clear your thoughts, so you do feel full of energy, especially if you feel tired at first. And then you just sit down and meditate. You just suddenly, like, you don't know where all this, like, positive energy comes from. I guess this feeling, like, this euphoric feeling to go forward now and continue about, like, your day. You just feel so

		good about life, everything yet. At that point everything is all happy. Like you're in another place." "Yeah so uhm. I - I go once a year to uhm Saudi Arabia, to Mecca. Yeah so over there I - I feel very uhm spiritual - very spiritual and I feel that you know I'm safe and I'm happy and I don't want to leave and when I'm there, I - can feel the spirituality you know? Like I feel like I'm in a scared place, but I don't see or hear anything."
13	Precognition	"Well I have had uhm experiences where for example that time last semester I was in class and probably a second before - like I felt like something was going to fall from the ceiling, and I know I remember shouting to my professor Move, like look out. My speech was coming out like jumbled because I just felt like something was going to happen and all of a sudden a mouse fell from the ceiling." "I think yeah yeah. The - it happened yesterday. I was uhm I was outside in the car, and my boyfriend was out getting something and I was sitting in the car alone, and then I look - look out the window and I'm like - I just see like people like driving by and stuff and then I would think there's gonna be an accident someday here, and then uhm right there there was an accident like - yeah. There was an accident two seconds later. I'm like wow. Oh my gosh. Ha."
24	Visual Hallucination	"So I was basically just sleeping and I woke up out of nowhere and I was looking into the mirror when I woke up and I saw like a man with uh - like our holy clothing that we wear. Wearing that and just passing by, and there was a certain type of glow to him, but I just thought it was maybe from the light or something and I thought it was my dad." "And when the lightning came in and gave it - like a little bit of the lighting, uhm immediately I saw like a very tall like I guess man - figure of a man and he was very tall, and he - like it looked like he was wearing like a very long rain coat or something. Like a very long, dark rain coat, and he had like very like weird facial - like I couldn't see his face but the - he had like gaps on his face. It was very weird, it goes in like a full face." "And I just got the - that feeling of goose bumps uhm a weird feeling and I looked over like right next to the TV and a lady walked out of the wall. Uh fully formed, but clear, but also kind of like glowing. Uh and we just made eye contact, and I was too scared to like do anything, so I just sat there. She slowly walked over to me and she touched my toe and when I felt the touch, that's when I freaked out because I knew it was like more real to me. Uhm so I screamed. My sister was sitting there the whole time and didn't see anything."

Types of Appraisals

Table 8 illustrates example appraisals of experiences made by study participants.

Table 8: Types of Cognitive Appraisals

#of Participants N=29	Appraisal Type	[Type of Experience] Example Excerpt (s)
13	Biological	[Auditory Hallucination] "So the ringing has an explanation. Sometimes it happens regardless of whether it happens, like usually after you're - you're near a loud noise for a long period of time like in a concert. Like mild tinnitus." [Visual Hallucination] "I think that this kind of relates to you know feeling tired or stressed or anything like that, but I think I'll see something move and then I turn and nothing's there or anything like that."
6	Normalizing	[Auditory Hallucination] "Calling my name like I think it's - it might be common because you hear your name called a lot if your life." [Auditory Hallucination] "Yeah I mean - that's why I don't really talk about it cause I don't want people thinking like there's something wrong with me cause I'm pretty sure other people go through it, they just don't talk about it."
16	Psychological	[Auditory Hallucination] "Umm it was like two components. It was like I didn't really see depression as like a reason to leave school and like so it was kind of like a okay I'm - I actually I have a mental illness - one of the good ones maybe like. That was honestly my thought and then also it was like I figured it out it was a hallucination so I'm not that bad." [Auditory/Visual Hallucination] "That it's all mentally - like you're not mentally sane. So your mind likes to play tricks on you and this is one of the tricks that it plays."
21	No Interpretation/Explanation	[Dissociation] "I really don't know how to explain this so many thoughts are happening all at the same time and for me I'm just trying to piece it together what exactly is happening." [Auditory Hallucination]"Like there's no explanation for why it was happening or anything like that but it was just something that I came to terms with and was like okay well this happens like"

Of all appraisal types endorsed by participants across all anomalous experiences, 12% were biological and 15% were psychological. It is important to note that participants provided multiple interpretations for their experiences so one experience might have been coded for multiple appraisal types. For example, participants often stated that they had no interpretation for their experience (20% of appraisal types) even if they provided a specific appraisal type. 20% of appraisal types were spiritual. A majority of participants gave at least one spiritual appraisal to their experiences (72%), while 28% gave no spiritual appraisal to any of their experiences. Examples of spiritual appraisal types are illustrated below in Table 9.

Table 9: Example Excerpts of Spiritual Appraisals

#of Participants N=29	Appraisal Type	[Type of experience] Example Excerpt (s)
21	Spiritual	[Visual Hallucination] "Could be my great grandmother… Cause my grandmother was a witch....allegedly...allegedly..." [Auditory Hallucination] "That the thought of uhm of people always looking after you, and they'll always be looking and protecting you and it's just like in a way they're always like - connected trying to talk to you, trying to connect with you." [Visual Hallucination] "I had thought that maybe I had seen some type of spiritual thing, because I believed in like God a lot at that time."
9	Supernatural	[Somatic Anomaly] Uhm and then - I mean I relate it to like maybe something supernatural, something bigger than I don't really understand. Uhm cause I can't really explain it. Like I don't know why. Maybe sometimes I might be like okay this is weird, like why is this happening, but I can't really explain why."
16	Family/Cultural Spiritual Influence/Interpretation	[Visual Hallucination] "I was 100% awake. And I told my grandma because she kind of believes in superstition, I told her that this happened and she had said that Oh don't tell anybody about that. It's most likely that you saw like a holy figure. Like you probably saw God or one of his messengers, like that." [Visual Hallucination] "It helps me try to understand certain situations you know trying to relate things so because since I would reject the idea Like of a demonic thing which is more like a Catholic belief in me…I would most likely accept the jinn idea. Possibly because you know you grew up culture and you believe that this culture has some effect on you. So I guess yes and you hear stories about all the time from my dad and my parents when they were their kids seeing things when they lived in like the countryside and so you know you use that as a logical way to explain what you see. [Somatic Anomaly] Because it's kind of hard to say, but in our culture, especially like uhm, we don't have a lot of explanations for a lot of things that happen to us, so we just try to like - they're very religious too. A lot of us are like Catholic, I'm not Catholic myself but uhm they're very Catholic or Christian or whatever, same thing. But they believe in God and all this stuff, so they just associate with uhm a spirit."

Valence of Appraisals

The number of experiences differed across participants; thus participants assigned different valences to different experiences. It was not uncommon for participants to assign multiple feelings to the same experience. Of all valences assigned across all anomalous experiences 28% were positive, 35% were negative, and 37% were neutral. Emotional responses to the reported experiences were another component of the valence of the appraisals. Of all emotional reactions endorsed across all reported experiences, 20% were positive (i.e. excitement, happiness, laughter), 34% of emotional reactions were negative (i.e. distress, fear, anxiety, and discomfort) and 36% of reactions were confused, surprised or puzzled. 11% of emotional reactions reflected neutral feelings (i.e. feeling nothing or indifferent). Below is an example excerpt of the mixed emotional reaction of a participant after a visual hallucination:

"And it was scary I guess the whole time. And then it would be scary afterwards depending on the woman, I was scared for a brief period of time but then I felt totally like protected and safe."

Qualitative Inferential Results

The hypotheses were also tested with the qualitative data. The aims and hypotheses are restated below, followed by the associated qualitative results.

Aim 1: To determine whether spirituality is associated with cognitive appraisals of anomalous experiences.

Hypothesis 1: Among those who endorse anomalous experiences, individuals with higher levels of spirituality will be more likely to make spiritual appraisals of their anomalous experiences.

Table 10 reports the results of a coding matrix cross tab comparison made between differing spiritual identities and appraisal types by number of individuals.

Table 10: Number of Cases Coded with spiritual appraisals

	Number of Cases (Participants) Coded N=29			
Type of Appraisal	Religious n=11	Spiritual n=8	Agnostic n=5	Questioning n=5
3.1a Biological	2	4	3	4
3.1c. Psychological	6	2	3	5
3.1d. Spiritual	10	4	3	4
3.1f. Supernatural	2	3	3	1
3.1h. No interpretation	9	4	4	4
3.1j. Family Spiritual	7	3	2	4

Of the 11 individuals who identified as religious, 10 of those participants (90%) made at least one spiritual appraisal of their experience. Of all spiritual references made in the sample (n=86), religious individuals made 35% of the spiritual references. Participants who identified as questioning their spirituality were just as likely to make spiritual references, accounting for 36% of the spiritual references. Those who identified as spiritual made 22% of the spiritual references while agnostic participants made 7% of the spiritual references. Although spiritual appraisals were made by a majority of participants across all spiritual identity categories, highly spiritual participants were more likely to make spiritual appraisals. Thus, the hypothesis that highly spiritual individuals are more likely to make spiritual appraisals of their experiences was partially supported.

Hypothesis 1a: Family spirituality will influence appraisals, such that highly spiritual individuals will be more likely to report a family influence on the spiritual appraisals they make of their anomalous experiences.

This hypothesis was supported. In the overall sample, 55% of participants identified at least one family belief about spirituality as they described their appraisals of their experiences. As previously noted, participants who identified as religious (n=11) reported a strong family influence on their spirituality (38%) compared to the overall sample. 63.6% of religious participants reported a spiritual appraisal that came from a family member, lending support to the hypothesis that highly spiritual individuals would be more likely to report a familial influence on their spiritual appraisals. Below is an illustrative example in which a participant explained how her interpretation of a visual hallucination was influenced by her family's religious beliefs:

"I just feel like if they weren't religious and if they didn't teach me what I know about religion, then that mirror image would definitely think, I would be thinking it was a dream. Or I was seeing things."

Another participant noted the influence of a specific religious affiliation on her interpretation of a visual hallucination:

"Because it's kind of hard to say, but in our culture, especially like uhm, we don't have a lot of explanations for a lot of things that happen to us…A lot of us are like Catholic…they believe in God and all this stuff, so they just associate with uhm a spirit."

Across all spiritual categories, during the process of attempting to make sense of their anomalous experiences, many participants consulted with a family member who provided a spiritual interpretation for a visual hallucination:

"When it first happened, I kind of felt confused but uhm when my grandma had told me this is probably the reason, I - I kind of felt special." (Grandmother interpreted a visual hallucination as the participant seeing God)

Hypothesis 2: Among individuals who endorse anomalous experiences, individuals with higher levels of spirituality will be more likely to make positive appraisals of their experience.

Table 11 reports the distribution of a cross-tab comparison of the spiritual identity categories with the valence of appraisals reported by the participants. This report includes all experiences reported by the participants with some overlap among participants whose appraisals were assessed for more than one experience. The difference in frequencies across categories did not vary greatly.

Table 11: Valence of Appraisals across Spiritual Identities

	Number of Cases (Participants) coded			
Valence of Appraisal	Religious	Spiritual	Agnostic	Questioning
3.4a Positive	5	4	5	3
3.4b. Negative	7	3	3	3
3.4c. Neutral	5	4	1	3

Highly spiritual (religious) individuals were more likely to make negative appraisals with 7 out of 11 religious participants (64%) making at least one negative appraisal compared to 45% of religious participants making a positive appraisal, regardless of the type of appraisal. Compared to the overall sample, 24% of religious participants made at least one negative appraisal while 17% made at least one positive appraisal. These findings do not lend support to the hypothesis that highly spiritual individuals are more likely to make positive appraisals of their experience.

Hypothesis 3: Highly spiritual individuals will be more likely to make positive spiritual appraisals.

Of the participants who provided a spiritual appraisal for their experience in the overall sample (n=21), 3 participants (14%) reported a positive emotional response only.

Slightly less than half of participants (48%) reported both positive and negative emotional responses to their spiritual appraisals. Of the 10 religious participants who made at least one spiritual appraisal 5 participants (50%) assigned a positive valence to their experience and 4 out of 8 spiritual individuals (50%) assigned a positive valence. The hypothesis that highly spiritual individuals would be more likely to rate their spiritual appraisals as positive was therefore not supported.

Below are illustrative examples of spiritual appraisals with a positive valence. One participant who identified as spiritual, described positive feelings following an auditory hallucination related to her deceased father:

"That the thought of uhm of people always looking after you, and they'll always be looking and protecting you and it's just like in a way they're always like - connected trying to talk to you, trying to connect with you."

Another participant who identified as religious described positive feelings associated with a somatic anomaly:

"*One would be where my ex's grandmother like - when I felt her hug me or pass through me whatever that was - that experience was. I did for a second feel at peace. Like I felt that throughout my whole body, like all the stress. I didn't feel that at all. That all went away for that 30 seconds and then even for the next half hour, the whole - the whole room felt at peace. It just felt at ease. There was nothing but just goodbyes and great energy in that experience*"

Hypothesis 3a: Highly spiritual individuals who make positive spiritual appraisals will be more likely to report positive emotional responses to their experience.

In the overall sample, nine participants (31%) reported both a positive valence only and positive emotional response only in relation to a spiritual appraisal. Of these individuals, three identified as religious, while two identified as spiritual. Three of these participants identified as questioning and one participant identified as agnostic. Since 1/3

of the participants who made positive spiritual appraisals with positive emotional reactions identified as religious, this finding only lends partial support to the hypothesis that highly spiritual individuals who make positive spiritual appraisals will be more likely to report positive emotional responses to their experience. It was more common for participants to report multiple emotional reactions to their experience. For example, one participant who described a visual hallucination that she initially appraised as a negative spiritual experience that she reframed as a positive spiritual experience:

"Eventually I just started to think positive because I felt like if something was supposed to happen, this was supposed to do harm to me, that it would have happened already, uhm it wouldn't just me standing there watching me. So then I thought of it in a positive way as maybe you know, it was a family member. You know, someone - something with good intentions that didn't mean any harm to me which was kind of watching over me, protecting me, just making sure I was okay. So I kind of embraced it as a positive like peaceful and like graceful experience….So I just took it as a good experience, like maybe a guardian angel or someone watching over me"

Aim 2: To determine whether trauma modifies the relationship between spirituality and appraisals.

Hypothesis 4: Trauma moderates the relationship between spirituality and the valence of cognitive appraisals. Specifically, high spirituality will be related to negative appraisals of the anomalous experience in the context of trauma exposure.

Of the four individuals who reported no trauma history, all identified as highly spiritual or spiritual, and three out of the four assigned a negative valence to at least one of their experiences. Of the highly spiritual individuals who reported a trauma history (n=8), three (38%) assigned a negative valence to at least one of their experiences. The

hypothesis that highly spiritual individuals with a trauma history would be more likely to make negative appraisals of their experience was not supported.

Hypothesis 5: Highly spiritual individuals will be more likely to make negative spiritual appraisals of their experience in the context of trauma exposure.

Of the 10 highly spiritual individuals who made a spiritual appraisal of their experience, six (60%) rated their experience as negative. Of those six individuals, four reported a history of trauma. Only two of the spiritual individuals with a trauma history made a negative spiritual appraisal. These findings partially support the hypothesis that highly spiritual individuals would be more likely to make negative spiritual appraisals of their experience in the context of trauma exposure.

Hypothesis 5a: Highly spiritual individuals who make negative spiritual appraisals of their experience will be more likely to report negative emotional responses (i.e. distress) to their experience in the context of trauma exposure.

In the overall sample, 8 of the 21 participants who made at least one spiritual appraisal (38%) reported a negative emotional response only associated with their spiritual appraisal. All of the participants with no trauma history (N=4, 100%) made at least one negative appraisal that was associated with a negative emotional response. Three of the four participants with no trauma history made at least one negative spiritual appraisal that they associated with a negative emotion. Ten individuals with a trauma history reported at least one negative spiritual appraisal that they associated with a negative emotion. Three of those individuals identified as highly spiritual and two

identified as spiritual. The hypothesis that highly spiritual individuals who make negative spiritual appraisals will be more likely to report negative emotional responses in the context of trauma was not supported. Below is an illustrative example in which a participant described a somatic anomaly that she interpreted as a negative spiritual experience:

"Can't move, can't do anything. Sometimes when I like - lie down when I'm not sleeping, I feel like I can feel my spirit leaving my body in a sense. I feel like I can feel something coming out of my body, and even though I'm not getting up, it's like I feel like a spirit is getting off of my body, like I'm lying - I'm reclined and something is just getting up, standing up or sitting up. And I don't know, it kind of - that one I think is very very weird."

Exploratory Findings

The following section describes themes that were most frequently endorsed (coded) during the qualitative analysis in response to specific aspects of appraisals in the AANEX-CAR interview including the context, thought process and behavioral response to the experience. The most salient themes included the contribution of the situational context to the onset of anomalous experiences, efforts to reality test and behavioral immersion. Another theme that emerged was the impact of spiritual uncertainty on the appraisal process. The following themes, identified by the percent of interviewee endorsement, are described below, along with direct quotes from participants.

Theme 1: Situational Context contributed to the onset of anomalous experiences

The situational context was assessed by several questions, including: "Can you tell me what your life was like when you had the experience?" and "Were there any particularly difficult or exciting events happening to you at that time?" A majority of participants (n=23, 79%) reported at least one difficult life situation (i.e. transition to

college, death of a relative) or emotional distress (i.e. anxiety or depression) as a precipitant to their reported experiences. As one participant described, the transition to college was particularly difficult for him and precipitated an auditory hallucination:

"It was just really overwhelming. I - I didn't expect college to be that hard. And so overwhelming… it was just a lot to handle. And then I had nobody to really talk to…I felt really really alone at that time."

Another participated noted that their emotional distress may have caused their visual hallucination:

"But I think, thinking back on it I was already very stressed out at the whole situation, and also distressed from school that the fact that I was already trying to expect something to come in, I felt like that's what made me fabricate something. But at the time, I truly believed it."

Additionally, an exploration of the emotional response to experiences based on situational context indicated that 16 out of 23 participants (72%) who described emotional distress as the context preceding at least one of their experiences reported negative emotions associated with that experience.

Theme 2: Confusion, Puzzlement, and Efforts to Test Reality

A majority of participants (86.2%) described confusion and puzzlement as a reaction to at least one of their experiences. This confusion included questioning what was happening, attempting to reason and attempts to reality test or investigate what was occurring. Almost all participants described at least one instance of consulting with others around them to determine if they experienced the same thing or if they could help them come up with an explanation (93%).

One participant described her confusion and fear following a somatic anomaly:

"Uhm I thought I was going a little crazy. I was very scared. Uhm I yeah. I mainly got scared because I felt all this weight. I didn't - I was confused. I didn't understand why I was feeling this."

Attempts to reality test also included efforts to provide a rational explanation for the experience. As this participant described, she tried to find an explanation for her visual hallucination:

"Yeah like I'll say - no I would just say - you know what I just say to myself, probably it's just me or maybe I need glasses. Or something like that. I try to reassure myself that there's something just probably wrong with me or maybe I'm tired, or something like that. Like I'll try to think to myself that you know - it's probably just something going on with me. Why I'm seeing something that everyone else isn't."

Theme 3: Immersion with the Experience

A majority of participants (79.3%) described behaviors that reflected immersion with at least one of their reported experiences. Immersion is defined as acting in accordance with the initial interpretation of the experience, including speech, behavior or silently resisting the experience:

One participant described being immersed with a visual hallucination for a prolonged amount of time:

"But uhm I was really looking for it for a good I think like 10 minutes. Still saw nothing".

Another participant described praying in order to get through an experience of a somatic anomaly:

"Yeah but it's like the 23rd Psalm I would say the first - I would think the first verse, and then I would - no usually I would pray first and I would think the first verse of the 23rd Psalm. Or I would incorporate the 23rd Psalm into the prayer…

These behavioral responses are related to the cognitive belief that the anomalous perception was real. Participants varied in whether they ultimately decided that their

experience was real or not, but their beliefs and behaviors were part of the appraisal process and may have been related to the valence and emotions assigned to the experience.

Theme 4: Spiritual Uncertainty

Responses to the spiritual history portion of the interview highlighted dynamic nature of spiritual identity for many participants. A moderate number of participants (n=12, 41%) described changing spiritual beliefs and values or noted that they were uncertain about their spirituality. Although the majority of participants (79.3%) reported being raised with some sort of religious affiliation, it was notable that those who described spiritual uncertainty attributed their changing worldviews to exposure to science. As one participant noted:

"Uhm the more I heard about these scientists and they're religious beliefs and how they didn't really have any, it kind of just got me into thinking well yeah maybe it's not all religion, maybe it is more towards a religious perspective, maybe there's something actually that can explain it."

Difficult life experiences (i.e. loss) were also attributed to questioning spiritual beliefs as another participant described:

"And to just - having so much faith and then still it's like everything that you thought was wrong was like how can you believe in something when all your trust is gone. You literally took everything away from me."

Changing spiritual beliefs were noted to influence appraisals, as some participants noted that their initial spiritual appraisals were challenged by their changing beliefs, contributing to some confusion about how they ultimately appraised their anomalous experience.

CHAPTER 4: DISCUSSION

This study was designed to explore the nature of appraisals of psychotic-like experiences in a non-clinical sample and how spirituality and trauma inform such appraisals. The study had two aims: 1. To determine whether spirituality is associated with cognitive appraisals of psychotic-like experiences and 2. To determine whether trauma modifies the relationship between spirituality and appraisals. Using a mixed methods design, psychotic symptoms, trauma history, spirituality and appraisals of psychotic experiences were assessed in a sample of 29 young adults in an urban college setting. Associations between level of spirituality, number of traumatic events, psychotic symptoms and appraisals of experiences were tested with self-report questionnaires. Participants also provided retrospective accounts of their appraisals, emotional reactions and behaviors in relation to lifetime anomalous experiences.

Summary of Findings

Several hypotheses were tested in this mixed methods study design. A majority of the religious participants made at least one spiritual appraisal which lends support to the hypothesis that highly spiritual individuals would be more likely to make spiritual appraisals. Results showed that individuals who did not identify as spiritual or religious (i.e. agnostic, questioning) were just as likely to make spiritual appraisals of their anomalous experiences. Thus, the link between level of spirituality and spiritual appraisals was not unique or more likely. Although spiritual individuals used both positive and religious coping mechanisms to deal with stressful life events, those who tended to use negative religious coping mechanisms were less likely to make spiritual meaning out of their anomalous experiences. Those who tended to use negative religious

coping were also less likely to endorse feeling as if they had help to cope with stressful situations. While the hypothesis that individuals would be more likely to report a family influence on their appraisals of experiences was supported, the influence of family's spirituality was significant regardless of the level of spirituality of the participants. Highly spiritual individuals tended to identify family influence on at least one of their spiritual appraisals, as did agnostics and those questioning their spiritual identity.

The hypothesis that highly spiritual individuals would be more likely to assign a positive valence to their appraisal was not supported, as spiritual individuals were more likely to make negative appraisals of their anomalous experiences. The hypotheses that highly spiritual individuals would be more likely to make positive spiritual appraisals and have positive emotional responses to their spiritual appraisals were not supported. Spiritual appraisals were equally as likely to be rated positive as they were rated negative among spiritual individuals. Furthermore, highly spiritual and spiritual individuals were more likely to give mixed emotional responses to their spiritual appraisals.

Although the moderation effect could not be tested due the small sample size and the high prevalence of trauma, results indicated that spiritual individuals with a history of trauma were no more likely to make negative appraisals than those without trauma. Highly spiritual individuals also made negative spiritual appraisals regardless of their trauma history. Similarly, highly spiritual individuals with a history of trauma who made negative spiritual appraisals were no more likely to report negative emotions associated with their experiences. Overall, the more traumatic experiences participants reported, the more likely they were to report distressing psychotic symptoms. Additionally, individuals who tended to perceive stressful events as threatening and negative were more likely to

endorse distressing psychotic symptoms. Individuals who endorsed distressing psychotic symptoms were more likely to report negative emotions associated with their anomalous experiences.

Overall, many of the proposed hypotheses were not supported because level of distress or other factors (i.e. situational context) that immediately preceded the anomalous experience seemed to trump spirituality. The preponderance of trauma might explain negative religious coping, the tendency to appraise stressful situations as threatening and negative, as well as the tendency to make negative appraisals in this sample. Specific aspects of spirituality such as coping and family spirituality significantly influenced appraisals of anomalous experiences across all levels of spirituality. Other factors such as emotional and behavioral responses (i.e. confusion, efforts to test reality and immersion with the experience) were identified as significant contributors to the appraisal process.

Figure 4 illustrates the conceptual model that best fits the study results. Because this was a highly traumatized sample, the moderation effect did not fit into the model. Both trauma and distressing situational context are background factors that affected almost all participants. Family spirituality had stronger influence on cognitive appraisal type than the level of spirituality. Additionally, spirituality ultimately did not impact the valence of appraisals.

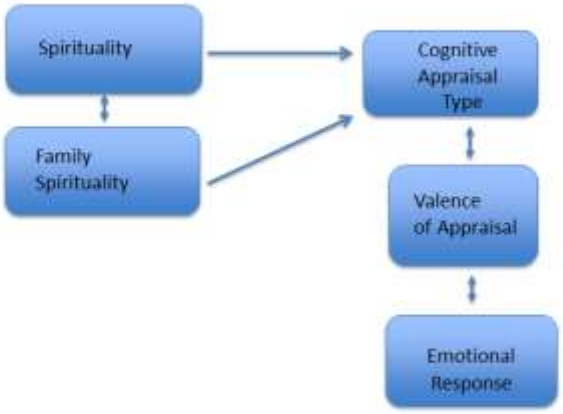


Figure 4: Spirituality is related to the type of cognitive appraisals among individuals who have a history of trauma and endorse anomalous experiences. In this model, family spirituality, which is associated with spiritual identity, is also related to the cognitive appraisal type. The relationship between spirituality and the valence of appraisals is mediated by the appraisal type (i.e. spiritual, psychological, etc.) of the experience. The type of appraisal is associated with the valence of the appraisal. The emotional response to the experience is an aspect of the appraisal process such that the emotional response is associated with the valence of the appraisal. The type and emotional response are bi-directionally associated to the valence as they each influence each other.

In the following sections, the study findings are expounded upon and followed by considerations of study limitations and areas for future study.

Spirituality and Appraisals

The vast majority of participants identified some connection to spirituality, whether they identified as religious, spiritual, questioning or agnostic and this connection

influenced their appraisals of anomalous experiences. Apart from no interpretation, spiritual appraisals were the most frequently endorsed appraisals, further supporting previous findings that identified spirituality's role in framing the meaning assigned to experiences, as it provides a context to put the experiences in (Cottam et al 2011). Although individuals who identified as highly spiritual or religious made more spiritual appraisals, the majority of participants regardless of spiritual level, offered some sort of spiritual explanation as they described their thought process in making sense of their experiences, even if they did not ultimately derive their conclusion from a spiritual framework. This finding indicates that spiritual explanatory models for anomalous experiences are not exclusive to any one level of spirituality, especially since spirituality is a dynamic personal aspect of one's identity.

The Influence of Family on Spiritual Appraisals and Spiritual Development

One factor that seemed to explain the high number of spiritual appraisals in the sample was the influence of family spirituality. The family plays an important role in socialization, particularly the transmission of spiritual beliefs and traditions such as spiritual beliefs and practices. There was notable influence of family spiritual beliefs during the appraisal process for many participants. As participants grappled and tried to make sense of their experience, the tendency to turn to spiritual explanations, or seek out the knowledge of their family for assistance with interpreting their experiences speaks to the strong influences of family on spirituality in general. Desrosiers, Kelley & Miller (2011) highlighted the strong parental influence on adolescent spirituality. In particular, the authors found that spiritual support from mothers in the form of discussion and spiritual transparency, was positively associated with relational spirituality (i.e. personal

relationship with God). Engebretson (2003) noted that parents have a greater influence on church attendance than on internal experiences of the divine. A majority of participants described being raised in a faith tradition, noting a family influence on their spiritual beliefs. Families convey religious and spiritual beliefs through various means (i.e. formal teaching, informal discussions, role modeling, participation in religious activities, etc. (Dollahite & Marks, 2005). It is significant that participants tended to turn to spiritual explanations for their anomalous experiences. Regardless of their current spiritual identity, being raised in faith traditions or being exposed to religious beliefs during early development provided participants with language to describe their confusing anomalous experiences. When uncertain about how to make sense of their experiences, participants were more likely to turn to spiritual explanations, which further highlights the influence of cultural factors such as spirituality on explanatory models.

Questioning spirituality and changing spiritual views was identified as an important theme. Adolescence is a time during which individuals start to develop their own spiritual beliefs through a process of questioning and exploration that culminates in a personally chosen spirituality. In their discussion of the spiritual development of adolescents, Good & Willoughby (2008) highlighted that the capacity for abstract thought increases throughout adolescence, which enables them to consider differing ideas about spiritual concepts. Many participants described being raised in religious family traditions, but noted how being introduced to science courses in college made them less certain about their beliefs. This ambivalence regarding spirituality, might explain the high number of "no interpretation" explanations even as spiritual explanations were offered. As individuals grappled with spirituality, they grappled with the spiritual influences of

their family, and as they were working to separate and create their own identity, they may have been less likely to accept initial spiritual appraisals and reported more confusion regarding their appraisals of their experiences.

Trauma as a context for Anomalous Experiences and Appraisals

This was a highly traumatized sample. Experiences of trauma are characterized by overwhelming experiences of intense negative affect which may make one vulnerable to anomalous experiences (Morrison & Wells, 2007). Worry and emotional distress have been associated with psychotic experiences as both precipitants and responses to psychotic experiences (Morrison & Wells 2007). In fact, the theme of emotional distress as a predominant situational context for the reported anomalous experiences in this study supports this notion.

The experience of trauma influences schemas about safety and control. The finding that distressing psychotic symptoms were associated with perceived threat and negative appraisals of stressful events lends support to the cognitive model of psychosis which holds that appraisals inform distress associated with psychotic symptoms. More specifically, a less adaptive appraisal style might make one more likely to experience distress when experiencing an anomalous experience, which often engenders confusion and uncertainty. Participants often noted initial feelings of fear, anxiety, and confusion associated with their experiences. Furthermore, Garety et al's (2001) cognitive model of psychosis posits that trauma creates a cognitive vulnerability through the creation of negative schemas of the world. The cumulative effect of multiple experiences of trauma

may make individuals even more vulnerable to negative appraisals of their experiences. The sense that the world is unsafe may make it more likely that during and after an unexpected, many times unexplainable anomalous experience, individuals appraise the experience as threatening. This would result in experiences of distress. In this study, some participants were able to assign some meaning to their experiences over time and reported less distress, but the initial negative response speaks to the overwhelming nature of anomalous experiences even when a cultural framework (i.e. spirituality) is readily available.

The cumulative effect of trauma has also been associated with negative religious coping, as spirituality provides meaning for the challenged assumptions about the self and the world engendered by the experience of trauma (Fallot & Heckman, 2005). In this sample, those who were prone to negative religious coping (i.e. feeling abandoned by God) were less likely to endorse the sense of having help or someone to turn to (i.e. God) to help them deal with life stressors. As negative coping is related to a sense of spiritual struggle, it is possible that individuals with anomalous experiences who turned to familiar spiritual explanations during the appraisals process were ambivalent about their spiritual explanations due to their ambivalence about God.

Valence and Affective Responses to Spiritual Appraisals

While previous studies have identified spirituality and spiritual appraisals as protective factors against negative feelings of distress (Brett et al 2014; Cottam et al 2011), spiritual appraisals were not significantly associated with the valence assigned to their experiences. During the appraisal process, spirituality was shown to be related to

both positive and negative appraisals of anomalous experiences. Highly spiritual individuals were more likely to rate their spiritual appraisals as negative. In addition, many participants would rate the valence of the experience as neutral despite identifying feelings of distress. While there were some indications of positive affect associated with spiritual appraisals, participants were more likely to endorse confusion or mixed feelings about their experience. The preponderance of both cognitive and affective experiences of confusion in reaction to anomalous experiences highlights how jarring psychotic-like experiences can be for the individual. Individuals may be questioning their perception as well as their appraisal of the experience. It is possible that due to the uncertainty of the experience and competing feelings, it was more difficult for individuals to make a more pointed decision about the overall valence of the experience. The level of confusion endorsed by participants might be indicative of mental health in this sample. These participants were able to contend with multiple interpretations for their experience and were able to test their reality. Those individuals further along the psychotic spectrum have more difficulty with testing their reality and considering alternative explanations in this way.

Cognitive and Behavioral Responses

Confusion about what was being perceived during anomalous experiences played an important role in the appraisal process as well as immersive behavioral responses to the reported experiences. Beliefs about the experiences, particularly whether it was real or not, seemed to impact the valence and emotional response to the experiences. These might be additional factors that influence the nature of appraisals and may explain why

the effect of spiritual appraisals on the valence and emotional responses to anomalous experiences was not as strong.

Implications for Treatment

While this study did not assess a clinical sample, the described experiences highlight the connections between cognition, affect and experiences on the psychotic spectrum. Some participants described being concerned about their mental health functioning as they reflected on their experiences. Brett et al (2009) note that one of the major protective factors against distress is having a suitable context in which to make sense of experiences so that appraisals are culturally and socially acceptable. Given the role that family and spirituality plays in informing appraisals, helping individuals who have difficulty figuring out how to interpret their anomalous experiences may be an important way to intervene. Incorporating spirituality into discussions about psychotic experiences would provide individuals with the language to talk about their experiences. If we could identify individuals who are having more difficulty making sense of their experience, we may be able to facilitate learning to foster better reality testing, or the ability to discriminate between experiences and this can be accessed through viewing their experiences through a spiritual lens. In particular, it may be useful for adolescents who are nearing the prodromal period to be informed about psychotic symptoms. Providing individuals who are concerned about their psychotic experiences with more information will both normalize these anomalous experiences and help them identify when psychiatric intervention is needed. College is a time during which adolescents undergo a considerable amount of stress, and are more vulnerable to these types of experiences as well as other psychiatric conditions. Psychoeducation on college

campuses about prodromal symptoms, stress, and mood symptoms would not only facilitate increased awareness, but would also provide opportunities for students to take advantage of counseling resources that are available to them.

Treatment recommendations for individuals with clinical psychosis include cognitive-behavioral therapy which allows individuals to change the relationship that an individual has with their psychotic symptoms, changing the beliefs about the power and omnipotence of the voices and reducing associated distress (Pérez-Álvarez et al, 2008). Other techniques include mindfulness, which focuses on awareness and reflection on the nature of the experiences, Acceptance and Commitment Therapy (ACT) which focuses on accepting the voices, and various role playing strategies including Socratic dialogue and the two-chair method. The research on CBT for psychosis is limited but it is possible that certain cognitive techniques may be useful for psychotic patients as well as individuals who are becoming distressed by their otherwise "acceptable" psychotic-experiences.

Limitations

This study had several limitations regarding methodology and the generalizability of findings. This research was an exploratory study because the constructs and measures included in the study model have not been utilized in the exact same configurations in previous research. In addition, the fact that different numbers of experiences were endorsed per participant, made it difficult to make group-level comparisons as aggregate numbers for certain variables did not capture the individual factors that make each experience unique (i.e. type of experience).

The small sample size was a significant limitation to this study as it limited the power needed to complete more complex statistical analyses of the data (i.e. path analyses). This limited our ability to test the predictive value of the variables of interest. The sample was comprised of college students, though psychotic experiences are not limited to this age group. The recruitment for this study may also involve a self-selection bias, as individuals who were interested or curious about their experiences were more likely to sign up for the study. Additionally, this was a select sample of individuals who endorsed a high number of psychotic symptoms in a previous study or were recruited by flyer. The lack of a comparison group such as a control group with individuals who reported a low number of symptoms, or no symptoms limits the ability to make meaningful conclusions about whether the associations found are unique to the sample, based on what distinguishes them from another group. While we could not predict this, the preponderance of trauma in the sample, created a non-normal distribution of that variable, which impacted the ability to test it as a contextual factor for influencing the valence of appraisals.

This cross-sectional study assessed a variety of psychotic-like experiences which occurred at varying time points for individuals, some from childhood. The retrospective nature of the appraisals of experiences that occurred years ago may be subject to recall bias. In interviews, participants had to be reminded to describe their appraisals at the time of the experience and not their current appraisals and it is unclear whether appraisals were always accurately described. The discussion of anomalous experiences also engenders some sensitivity to judgment, as many participants were concerned about appearing “crazy.” This may have influenced their responses to questions.

Another limitation concerns the length of the protocol, as the combined time between the interview and the self-report measures took anywhere from under an hour to four hours. This may have influenced motivation and interest from both a recruitment standpoint as well as from the perspective of the study participants. For example, one participant did not return for a follow-up interview, and it is unclear whether the interview was distressing or if the time was a factor that made it less likely for her to return.

Revisions to the Model

Although I could not test the proposed conceptual model with path analyses, the qualitative analysis highlighted additional factors that may refine the model if added. Refining the appraisals and expected relationships between spirituality may be an important step. For example, there may be more specific factors (i.e. family spirituality) within the construct of spiritual identity that would better explain the nature of appraisals. Also, accounting for the type of experience within the model, would add more specificity as it is possible that different appraisals may be attributed to different types of experiences. Trauma, which was previously proposed to moderate the relationship between spirituality and the valence, fits better as a moderator of the relationship between the appraisal type and the valence assigned to the experience. Figure 5 illustrates a conceptual model that considers these changes.

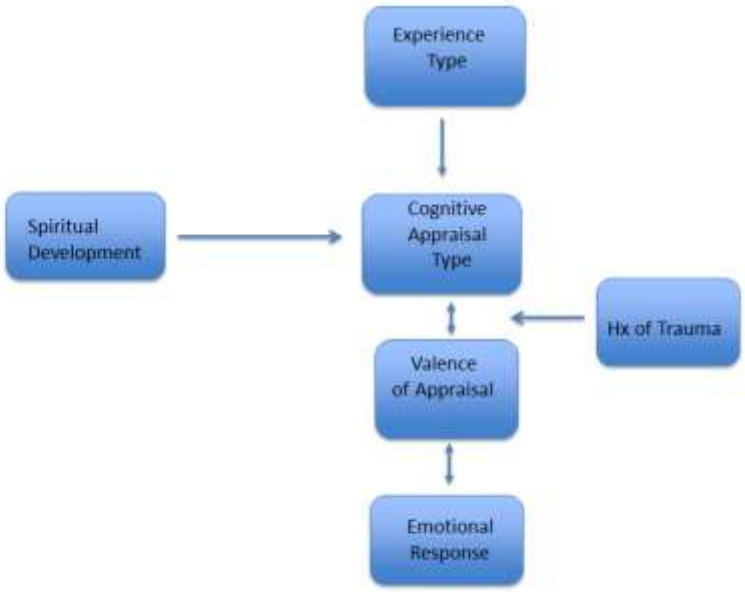


Figure 5: In this revised model, spiritual development (which includes family spirituality) is related to the type of cognitive appraisal among individuals who endorse anomalous experiences. Cognitive appraisals are also informed by the type of anomalous experience. The type and emotional response are bi-directionally associated to the valance as they each influence each other. A history of trauma modifies the relationship between the appraisal type and the valence, such that individuals will be more likely to make negative appraisals in the context of trauma and emotional distress.

Future Directions

The present findings signal the importance of further investigation into the nature of the relationship between spirituality and appraisals of psychotic-like experiences. The qualitative approach to the study of appraisals of anomalous experiences would be valuable in identifying common emotional-cognitive themes expressed in appraisals as well as deciphering the meanings and functions of such appraisals for specific individuals

when analyzed alongside various developmental and personal variables (e.g. trauma history, spiritual development). For example, different types of traumatic experiences might have different effects on appraisals and spiritual development. Additional identifying characteristics such as race or age might be interesting to explore in future studies.

Future studies should assess spirituality, trauma and appraisals in a larger sample of individuals who are in treatment for psychosis and compare them to individuals who are at risk, and to those who report anomalous experiences but have never been in treatment. This would replicate Brett and her colleagues (2014) recent study in which they used the AANEX to predict distress. In a mixed methods design, the quantitative measures could be administered at two time points to determine if there are any changes over time. A larger sample would also allow for the stratification of participants by number of traumatic events to explore the cumulative effect of trauma on spirituality and appraisals. Future prospective studies might identify individuals at risk for psychosis by interviewing individuals after they have their first psychotic-like experience. These individuals could then be tracked longitudinally to identify whether individuals end up meeting criteria for clinical psychosis at a later time point. This would give researchers the opportunity to track individuals and identify which factors contribute to progression from non-clinical psychotic experiences to clinical psychotic experiences.

CHAPTER 5: CONCLUSION

The present study aimed to expand the literature on appraisals of psychotic-like (anomalous) experiences by exploring the impact of trauma and spirituality on appraisals of experiences. While both factors have been linked to cognitive models, they are usually conducted on European samples. No other study has focused on the specific content of appraisals to analyze the factors that contribute to the appraisals (i.e. spiritual identity, trauma) particularly in an urban college setting, assessing individuals who are in the prime age range for the prodromal period of psychosis. The finding that family spirituality plays a role in informing appraisals adds to the literature by identifying a cultural factor that informs appraisals of anomalous experiences.

Continued research may contribute to the literature on the development of psychosis with special consideration given to social and cultural factors that may play a role. In addition, continued research on the cognitive and affective factors associated with psychosis will help clinicians to gain clearer insight on the line between pathological and non-pathological anomalous experiences and inform appropriate interventions to help individuals who may or may not be in distress.

APPENDIX A: Phone Outreach Script:

[Materials needed: Excel sheet with participant's contact information]

Hello, may I speak with _____? My name is _____, and I am a researcher at The City College of New York. I am calling because we would like to invite you to participate in a follow-up research study to one you previously participated in at CCNY. Participation involves completing a self-report questionnaire about your background, your social experiences and your feelings on a computer and participate in a semi-structured interview about your experiences and feelings. You would be compensated $40 for your time, which is expected to be about 2.5 to 3.5 hours. If you're interested please give a call to 212-650-5703.

[If yes]:

OK great, to check if you're eligible I'm going to read a list of experiences. Please let me know if you have ever had any of these experiences. Some of these questions are sensitive in nature. You are free not to answer any of them if you do not want to, and we can stop at any time. All your information will be kept confidential. Just answer as accurately as you can:

[Ask screening questions]

For each question, say yes if you have ever experienced any of these thoughts, feelings, and experiences. Do not include experiences while using alcohol, drugs or medications. Otherwise say no:

7. Have you ever had an odd, out of the ordinary experience that you could not explain, such as a vision or out of body experience?
8. Have you had ever had the experience of seeing something that other people couldn't see, or that you later found out was not there?
9. Have you ever had the experience of hearing things, like voices talking, or music playing, when there hasn't been anyone around?
10. Have you ever had experiences of unusual sensations in your body, like numbness, tingling, or something entering or passing through your body?
11. Have you had the experience of having spiritual 'insights' or sudden revelations come into your mind, for example about the nature of divine or cosmic principles, or the functioning of society, or other fundamental issues?
12. Have you had experiences in which things in the world around you seemed to contain messages or hints, perhaps in a metaphorical or symbolic way?

[If yes to 1 or more screening questions]: Thank you. Your information will be kept confidential and all identifying information will be kept separate from your responses to interviews and surveys. Your participation is completely voluntary and you can withdraw

from the study at any time. You are eligible to participate in the study. Would you be interested in participating?

[If yes]:
Thank you for agreeing to participate. The next step is to set up an appointment for you to come in and complete the study. When you come in, you will be given a consent form that lists the information we just discussed, including how your information will be kept confidential.

[*Research assistant will then set up appointment*]

[If Not Eligible:]

It seems that you are not eligible for the study at this time. Thank you for taking the time to answer those questions.

Do you have any questions?

[If yes]:

I would be happy to answer any questions you may have.

[*Research assistant would answer any questions raised*]

[If no, or when questions have been answered]:

If you have any other questions before your interview, please feel free to contact Kathleen Isaac, the investigator at 212-650-5703 and leave a message with your name and contact information to request further information.
Thank you for your time. We appreciate your participation in our previous study.
*****Record the specific outcome of the phone call in the excel spreadsheet (include issues raised, reasons for wanting to participate or not participate, etc)*****

APPENDIX B: Interview Protocol

Introduction: You talked a bit over the phone about some of your experiences. In a moment I will be going through a list of experiences that people your age have described. I have to go through every question so just say no if you have never had any of the experiences. I will begin by asking about your personal and family history and some of the questions will require you to recall things from a while ago. Please answer as best as you can.

1. What is your current age? _____

2. Are you a student? Yes No
   a. If so, what year are you? _____

   b. If not, what is your occupation? _____

3. How has school/work been going for you?
   _____
   _____
   _____
   _____

4. Have you ever seen a psychologist or psychiatrist? Yes No

5. Have you ever been hospitalized for a psychiatric issue? Yes No

6. Has anyone in your family ever had any psychiatric issue? Yes No
   6a.Who?_____
   _____
   _____

7. Have you ever had a difficult life experience that you would say was traumatic? If yes, would you mind telling me more about it? You do not have to go into detail if you do not feel comfortable.
   _____
   _____
   _____

8. When you drink, how much do you drink?
   _____
   _____

9. Have you used any drugs (Marijuana, cocaine, ecstasy, etc)? Yes No
   9a. When was the last time you used drugs?
   _____
   _____

AANEX Inventory – Short Form

Now I will ask a series of questions. Please let me know if you have ever experienced any of these by saying yes or no. When answering please say yes if this experience has ever occurred in your lifetime whether in childhood or recently.

Note to Interviewer: ***[For any items endorsed establish whether the experiences occur/ have occurred in clear consciousness]. If experiences have only occurred during drug intoxication, and never at other times, they should not be rated even if severe].***

1. ***Receptivity:*** (E)
    a. Have you had the experience of feeling emotions or thinking thoughts that were actually those of other people?
    b. Have you ever thought that other people or agencies were putting thoughts in your head, or making you feel certain things?
    c. Have you had the experience of picking up on other people's thoughts?

1	2	3
Not present	Unclear	Present

If Present or Unclear: Can you tell me more about that experience? (Get details on specifics of the experience). Record Response here:

_____
_____
_____
_____
_____

2. ***Thought withdrawal:*** (E)
    Have you ever experienced your thoughts being taken out of your mind, blocked or stopped by something or someone else?

1	2	3
Not present	Unclear	Present

If Present or Unclear: Can you tell me more about that experience? (Get details on specifics of the experience). Record Response here:

_____
_____
_____
_____
_____

3. ***Passivity (other):*** (B)
    a) Have you ever had an experience of having your thoughts, feelings or movements influenced by other people? Through their thoughts, or gestures alone?
    b) Have you ever had an experience in which you felt your body moving automatically, or felt urges to move into certain postures or make certain movements, when you didn't seem to be controlling this?

1	2	3
Not present	Unclear	Present

If Present or Unclear: Can you tell me more about that experience? (Get details on specifics of the experience). Record Response here:

_____
_____
_____
_____
_____
_____

4. ***Voice experiences:*** (E)
    Have you ever had the experience of hearing things, like voices talking, or music playing, when there hasn't been anyone around?

1	2	3
Not present	Unclear	Present

If Present or Unclear: Can you tell me more about that experience? (Get details on specifics of the experience). Record Response here:

_____
_____
_____
_____
_____

5. ***Depersonalisation:*** (D)

Have you had the experience of feeling alienated or at a distance from yourself, so that your actions and movements seem impersonal and automatic, or it feels as though you are listening to yourself speaking when you talk?

	1	2	3
	Not present	Unclear	Present

If Present or Unclear: Can you tell me more about that experience? (Get details on specifics of the experience). Record Response here:

_____
_____
_____
_____
_____
_____

6. ***Derealisation:*** (D)

a) Have you had the experience of the world seeming altered in a strange way, so that it didn't seem as real and familiar as usual, but perhaps looked flat or artificial?
b) Have you had the experience of the world seeming different or new, so that it seemed less solid, and more perfect or 'glowing' somehow?

		1	2	3
		Not present	Unclear	Present
	LIFETIME			

If Present or Unclear: Can you tell me more about that experience? (Get details on specifics of the experience). Record Response here:

_____
_____
_____
_____
_____
_____

7. ***Somatic anomalies:*** (B)

Have you ever had experiences of unusual sensations in your body, not created by any obvious physical cause, for example of heat or cold, energy moving, or something entering or passing through your body?

1	2	3
Not present	Unclear	Present

If Present or Unclear: Can you tell me more about that experience? (Get details on specifics of the experience). Record Response here:

_____
_____
_____
_____
_____
_____

8. ***Lost automatic skills:*** (C)

Have you experienced the loss of automatic skills, so that things you could normally do easily and without really thinking suddenly require all your attention and have be taken one step at a time?

1	2	3
Not present	Unclear	Present

If Present or Unclear: Can you tell me more about that experience? (Get details on specifics of the experience). Record Response here:

_____
_____
_____
_____
_____
_____

9. Language Disturbance: (C)

Have you experienced being in a state in which it is difficult to follow a conversation or understand what someone is saying, because the words seem to stand on their own and don't make sense?

1	2	3
Not present	Unclear	Present

If Present or Unclear: Can you tell me more about that experience? (Get details on specifics of the experience). Record Response here:

_____
_____
_____
_____
_____
_____

10. Thought blockages: (C)

Have you noticed ever that your thoughts seem to suddenly stop or fade out, so that you lose your train of thought much more often than usual?

1	2	3
Not present	Unclear	Present

If Present or Unclear: Can you tell me more about that experience? (Get details on specifics of the experience). Record Response here:

_____
_____
_____
_____
_____
_____

11. Insight experiences: (A)

Have you had the experience of having 'insights' or sudden revelations come into your mind, for example about the nature of divine or cosmic principles, or the functioning of society, or other fundamental issues?

1	2	3
Not present	Unclear	Present

If Present or Unclear: Can you tell me more about that experience? (Get details on specifics of the experience). Record Response here:

_____
_____
_____
_____
_____
_____

12. Mission experiences: (A)

Have you had the experience of some kind of 'mission' or duty being revealed to you, and knowing that you have to fulfil this mission, or feeling compelled to do so?

1	2	3
Not present	Unclear	Present

If Present or Unclear: Can you tell me more about that experience? (Get details on specifics of the experience). Record Response here:

_____
_____
_____
_____
_____
_____

13. Spiritual elation: (A)

Have you ever had an experience like a state of 'grace' (i.e. deep sense of inner peace), in which you felt extremely content and peaceful, or released from all responsibilities, or very light and full of energy and love, [which has been unlike your normal fluctuations of mood]?

1	2	3
Not present	Unclear	Present

If Present or Unclear: Can you tell me more about that experience? (Get details on specifics of the experience). Record Response here:

_____
_____
_____
_____
_____
_____

14. Loss of emotions: (D)

Have you had the experience of feeling as though your emotions have disappeared, so that you feel numb, or as if something is missing inside?

1	2	3
Not present	Unclear	Present

If Present or Unclear: Can you tell me more about that experience? (Get details on specifics of the experience). Record Response here:

_____
_____
_____
_____
_____
_____

15. Precognition: (B)

a) Have you had the experience of knowing what is going to happen a fraction of a second before it happens?
b) Have you had experiences of precognition when you foresee an event that happens later?

1	2	3
Not present	Unclear	Present

If Present or Unclear: Can you tell me more about that experience? (Get details on specifics of the experience). Record Response here:

_____
_____
_____
_____
_____

16. Reference experiences: (A)

a) Have you had experiences in which things in the world around you seemed to contain messages or hints, perhaps in a metaphorical or symbolic way?
b) Have you had the experience of people seeming to be communicating with you in a special way, like with double meanings or significant words or hints?
c) Have you had the experience of feeling as though events in your environment, such as the actions or comments of other people, are in reference to you, or are directed at you, even though you know that this is unlikely?

1	2	3
Not present	Unclear	Present

If Present or Unclear: Can you tell me more about that experience? (Get details on specifics of the experience). Record Response here:

_____
_____
_____
_____
_____
_____

17. Thought Transmission: (E)

a) Have you had any experience of your thoughts being read or picked up by other people?

b) Have you ever had the experience of people reacting to thoughts you have had, so that you wonder if they are aware of what you are thinking?

1	2	3
Not present	Unclear	Present

If Present or Unclear: Can you tell me more about that experience? (Get details on specifics of the experience). Record Response here:

_____
_____
_____
_____
_____
_____

18. Visual Anomalies (Hallucinations) (B)***:***

a) Have you ever had the experience of seeing something that other people couldn't see, or that you later found out was not there?

b) Have you had the experience of seeing someone's aura or other manifestations of energy?

1	2	3
	Not present	Unclear Present

If Present or Unclear: Can you tell me more about that experience? (Get details on specifics of the experience). Record Response here:

_____
_____
_____
_____
_____
_____

19. Out of Body Experiences: (E)

Have you ever had an out-of-body experience, in which you were actually able to look at your body from outside?

1 2 3
Not present Unclear Present

If Present or Unclear: Can you tell me more about that experience? (Get details on specifics of the experience). Record Response here:

_____
_____
_____
_____
_____
_____

20. Captivation/fixation:

Have you noticed ever that your attention gets caught by something you can see, and you find yourself looking at it without really wanting to? Like you get fixed at staring at something, or somehow something in your environment seems to stand out from everything else, so you're drawn to look at it?

1 2 3
Not present Unclear Present

If Present or Unclear: Can you tell me more about that experience? (Get details on specifics of the experience). Record Response here:

_____
_____
_____
_____
_____
_____

21. ***Other unusual experiences:***

Have you had any other unusual experience that we have not already discussed?

1 2 3
Not present Unclear Present

If Present or Unclear: Can you tell me more about that experience? (Get details on specifics of the experience). Record Response here:

_____
_____
_____
_____
_____

****PROCEED TO AANEX-CAR TO FOLLOW UP ON EXPERIENCES****

AANEX CAR

A) Context Situation and Feelings

1. Can you tell me what your life was like when you had the experience?
2. What kind of living situation were you in?
3. Were there any particularly difficult or exciting events happening to you at that time?
4. How were you feeling emotionally at this time?

Record verbatim responses here:

_____
_____
_____
_____
_____
_____
_____
_____
_____

Scoring: (2=*met criteria*, 1= *criteria met but in a minor way, or it is not fully clear that they are met,* 0=*criteria not mentioned at all*)

Situation:		**Feelings:**	
Significant change	2 1 0	Exhaustion (physical/mental)	2 1 0
Social Isolation	2 1 0	Depression	2 1 0
Crisis/Impasse	2 1 0	Anxiety/Stress	2 1 0
Trauma	2 1 0	Deep Relaxation	2 1 0
Drug use	2 1 0	Elation	2 1 0
Religious/Spiritual Practice	2 1 0		
Cultural Context From childhood	2 1 0		

B) Framework of Interpretation

1. When you had that experience, what did you think had happened?
2. If EXPERIENCE described, what sense did you make of it? Did you think here was an explanation for it?
3. If BELIEF described, what did you experience that led you to think that?

Record responses here:

_____
_____
_____
_____
_____
_____
_____
_____
_____

Scoring: (2=yes, 1=perhaps, 0=no)

Biological	2	1 0	Spiritual	2	1 0
No interpretation	2	1 0	Other people	2	1 0
Normalizing	2	1 0	Drug Related	2	1 0
Psychological	2	1 0	Supernatural	2	1 0

Probing questions:

1. Valence: Did you think the experience was a beneficial or bad sign?
2. Valence: Did you think the experience was dangerous or harmless?
3. Internal/External: Did you think it was caused by changes in you or something outside of you?
4. Agency: Did you think this was caused by some person or agency, known or unknown, or by some impersonal process or factors?

Valence: 5=strongly positive, 4=slightly positive, 3=neutral, 4=slightly negative, 1=strongly negative

Positive/Negative 5 4 3 2 1

5=definitely dangerous or harmful, 4=slightly dangerous, 3=neutral, 2=almost harmless, 1=completely harmless

Dangerous 5 4 3 2 1

Internal/External: 5=source of experience/change external to self, 4=external but some relevant internal aspects, 3=neutral, 2=predominantly due to internal factors but some external, 1=entirely due to internal factors

I/E: 5 4 3 2 1

Agency: 5= source entirely personal, 4= source predominantly personal but with some personal aspect, 3=neutral/balance, 2=predominantly impersonal but with some agential aspect, 1=entirely impersonal

Personal/Impersonal: 5 4 3 2 1

5. Do you think your understanding of your experience has changed over time? (1=yes, 0=no)

C) Emotional and Behavioral Response

1. How did you feel when this happened?

Record Responses here:

_____
_____
_____
_____
_____
_____
_____

Probing Questions:

1. **Arousal:** Did you feel surprised, puzzled or curious?
2. **Distress:** Did you have any bad feelings, worries, or fears?
3. **Positive emotions:** Did you have any good feelings at all?

Arousal/Orienation: (1=no surprise, puzzlement or curiosity, 2=low arousal/orientation, 3=Moderate arousal, 4= a great of arousal plus score on neg/pos emotions, 5=only uninterpreted arousal/orientation)

Arousal: 5 4 3 2 1

Distress/Emotions: 1=no bad feelings, 2=small mention of negative feeling, 3=definite degree of negative feelings, 4=high degree of negative feelings, 5=only negative feelings reported)

Distress: 5 4 3 2 1

Positive emotions: (1=no good feelings, 2=small mentions of any good feeling, 3=definite degree of good feelings, 4=high degree of good feelings, 5=only good feelings reported)

Positive: 5 4 3 2 1

4. Can you tell me how anxious you felt?

not at all	a little	somewhat	rather	extremely
1	2	3	4	5

5. Can you give me an idea of how excited you were?

not at all	a little	somewhat	rather	extremely
1	2	3	4	5

****Note any other emotions noted and ask about valence*****

6. [Emotion]

not at all	a little	somewhat	rather	extremely
1	2	3	4	5

Now I'm interested in how you responded. ***(Record verbatim responses)***

2. As this was happening, what did you think?

_____
_____
_____
_____
_____

3. What did you do?
   _____
   _____
   _____
   _____
   _____

Scoring: 1 = no responses of this kind described 2 = minimal responses of this kind described 3 = some responses of this kind described 4 = considerable responses of this kind described (but also other kinds mentioned) 5 = only responses of this kind described

a) **Avoidance** e.g: Focus on ongoing activity, change environment, talk to other about other subject, relaxation techniques, use drugs or alcohol etc.

_____
Score

b) **Cognitive Control/ Self-statement** e.g: Reinterpretation/reframing, self-reassurance, control statements ('don't think about that', switching to other thoughts etc.

_____
Score

c) Reappraisal e.g: Reliving or reconsidering experience, reality testing actions or discussions with other people etc.

_____
Score

d) **Rumination** e.g: Intellectualisation, mulling over experience, involuntary rumination etc.

_____
Score

e) **'Immersion'** e.g: Acting in accordance with initial interpretation of experience, including speech, behaviour or silently resisting experience.

_____
Score

f) **Neutral response** e.g: Acceptance of anomaly, ignoring anomaly (not active avoidance), enjoying anomaly (not active pursuit of it), sharing experience (not reappraising or reality testing.) etc.

_____
Score

D) Context and Implications of Appraisal

1. ***Self-esteem:*** What effect did this experience have on how you saw yourself? Did it make you see yourself in a better light, make you feel worse about yourself or not have any effect?

1	2	3	4	5
greatly ↓	slightly ↓	neutral	slightly ↑	greatly ↑

2. ***Perceived social understanding:*** Did you feel your experience would be understood by your social group, or did you feel it would be best to keep quiet about it?

   If yes: Do you think they had a similar experience themselves? (0=no, 1=yes)

1	2	3	4	5
def kept quiet	best to keep quiet	unsure	suspect understand	def understand

3. ***Perceived controllability:*** When you first experienced [this], how much control did you have over the experience? For example, could you stop the experience when you wanted, or did you deliberately elicit it? (0=no, 1=yes)

   1 (none) 2 (minimal) 3 (some) 4 (mostly) 5 (total control)

4. ***Attempted Control:*** Did you try to control it? Control your reaction or what you thought about it? In what ways?

   1 (not at all) 2 (a little) 3 (some) 4 (a lot) 5 (total effort)

5. ***Premorbid awareness:*** Were you aware that these experiences could occur before it happened to you? (0=no, 1=yes)
   a. If yes: When it happened, did you know what was happening because of this information you had?

1	2	3	4	5
no prior awareness	a little/ general	a little/ specific	a lot/	knew all about specific

6. ***Tolerance of cognitive dissonance/Intellectual involvement***: When [this] first happened, was it inconsistent with how you'd understood the world? Did you think that it was impossible, or feel very confused, puzzled or surprised? (0=no, 1=yes)

   a. If YES: Was it important to you to work out what was going on, or did you take it at face value?

   _____

_____
_____
_____

b. Did you think about it a lot, trying to understand, or did you avoid trying to work it out? (0=no, 1=yes)
    i. If NO: Did you feel as though you had reached a new or better understanding of the world? (0=no, 1=yes)
        1. Did you think about this new understanding a lot, trying to work out the details, or did you feel it was not important?

    ii. If YES: Did you think a lot about why or how your experience had happened, or what it meant?
    iii.

1	2	3	4	5
not at all [0%]	a little [1-19%]	some [20-49%] rumination	a lot of [50-89%] rumination	crucial [90-100%] need to understand

** Percentages given as the percentage of time spent thinking about the anomaly**

Record Comments here:
_____
_____
_____
_____
_____
_____
_____

E) Alternative Interpretations

1. I want to ask you about some other ways of explaining what you experienced, and whether you agree that they are valid explanations or not:

Probe for endorsement of other frameworks of interpretation other than that mentioned spontaneously. Clarify responses to enable rating each**: ('definitely valid' = 2, 'perhaps'=1, 'definitely not valid'=0).**

1. Psychological: Do think it is possible that your experience(s) was caused by your mind, in that there are psychological reasons or explanations for it? 0 1 2
2. Drug-related: Do you think that your experience was in any way related to drug use? 0 1 2
3. Spiritual: Do think that there may have been spiritual elements or processes involved in your experience(s)? 0 1 2
4. Biological: Do you think it is possible that your experience(s) could be the result of some illness, disorder, or medical issue? 0 1 2
5. Supernatural: Do you think it is possible that supernatural factors were involved in your experience, such as invisible or other- worldly beings, agencies or forces?

0 1 2

6. Normalising: Do you think it is possible that your experience(s) could be normal or could reflect a natural capacity of human beings? 0 1 2
7. Other people: Do you think it is possible that your experience(s) were deliberately caused by other people? 0 1 2
8. No interpretation: Do you think that your experience(s) has/have no explanation? 0 1 2

F) Did you derive a sense of purpose or meaning from this experience? (0=no, 1=yes)

_____
_____
_____

Complete appraisal interview for every anomalous experience endorsed*

AANEX CAR-Additional Experiences

G) Context Situation and Feelings

5. Can you tell me what your life was like when you had the experience?
6. What kind of living situation were you in?
7. Were there any particularly difficult or exciting events happening to you at that time?
8. How were you feeling emotionally at this time?

Record verbatim responses here:

_____
_____
_____
_____
_____
_____
_____
_____
_____

Scoring: (2=*met criteria*, 1= *criteria met but in a minor way, or it is not fully clear that they are met,* 0=*criteria not mentioned at all*)

Situation:		**Feelings:**	
Significant change	2 1 0	Exhaustion (physical/mental)	2 1 0
Social Isolation	2 1 0	Depression	2 1 0
Crisis/Impasse	2 1 0	Anxiety/Stress	2 1 0
Trauma	2 1 0	Deep Relaxation	2 1 0
Drug use	2 1 0	Elation	2 1 0
Religious/Spiritual Practice	2 1 0		
Cultural Context	2 1 0		
From childhood	2 1 0		

H) Framework of Interpretation

4. When you had that experience, what did you think had happened?
5. If EXPERIENCE described, what sense did you make of it? Did you think here was an explanation for it?
6. If BELIEF described, what did you experience that led you to think that?

Record responses here:

_____
_____
_____
_____
_____
_____
_____
_____
_____

Scoring: (2=yes, 1=perhaps, 0=no)

Biological	2	1 0	Spiritual	2	1 0
No interpretation	2	1 0	Other people	2	1 0
Normalizing	2	1 0	Drug Related	2	1 0
Psychological	2	1 0	Supernatural	2	1 0

Probing questions:

6. Valence: Did you think the experience was a beneficial or bad sign?
7. Valence: Did you think the experience was dangerous or harmless?
8. Internal/External: Did you think it was caused by changes in you or something outside of you?
9. Agency: Did you think this was caused by some person or agency, known or unknown, or by some impersonal process or factors?

Valence: 5=strongly positive, 4=slightly positive, 3=neutral, 4=slightly negative, 1=strongly negative

Positive/Negative 5 4 3 2 1

5=definitely dangerous or harmful, 4=slightly dangerous, 3=neutral, 2=almost harmless, 1=completely harmless

Dangerous 5 4 3 2 1

Internal/External: 5=source of experience/change external to self, 4=external but some relevant internal aspects, 3=neutral, 2=predominantly due to internal factors but some external, 1=entirely due to internal factors

I/E: 5 4 3 2 1

Agency: 5= source entirely personal, 4= source predominantly personal but with some personal aspect, 3=neutral/balance, 2=predominantly impersonal but with some agential aspect, 1=entirely impersonal

Personal/Impersonal: 5 4 3 2 1

10. Do you think your understanding of your experience has changed over time? (1=yes, 0=no)

I) Emotional and Behavioral Response

4. How did you feel when this happened?

Record Responses here:

_____
_____
_____
_____
_____
_____
_____

Probing Questions:

1. **Arousal:** Did you feel surprised, puzzled or curious?
2. **Distress:** Did you have any bad feelings, worries, or fears?
3. **Positive emotions:** Did you have any good feelings at all?

Arousal/Orienation: (1=no surprise, puzzlement or curiosity, 2=low arousal/orientation, 3=Moderate arousal, 4= a great of arousal plus score on neg/pos emotions, 5=only uninterpreted arousal/orientation)

Arousal: 5 4 3 2 1

Distress/Emotions: 1=no bad feelings, 2=small mention of negative feeling, 3=definite degree of negative feelings, 4=high degree of negative feelings, 5=only negative feelings reported)

Distress: 5 4 3 2 1

Positive emotions: (1=no good feelings, 2=small mentions of any good feeling, 3=definite degree of good feelings, 4=high degree of good feelings, 5=only good feelings reported)

Positive: 5 4 3 2 1

4. Can you tell me how anxious you felt?

not at all	a little	somewhat	rather	extremely
1	2	3	4	5

5. Can you give me an idea of how excited you were?

not at all	a little	somewhat	rather	extremely
1	2	3	4	5

****Note any other emotions noted and ask about valence*****

6. [Emotion]

not at all	a little	somewhat	rather	extremely
1	2	3	4	5

Now I'm interested in how you responded. ***(Record verbatim responses)***

5. As this was happening, what did you think?

   _____
   _____
   _____
   _____
   _____

6. What did you do?

   _____
   _____
   _____
   _____

Scoring: 1 = no responses of this kind described 2 = minimal responses of this kind described 3 = some responses of this kind described 4 = considerable responses of this kind described (but also other kinds mentioned) 5 = only responses of this kind described

a) **Avoidance** e.g: Focus on ongoing activity, change environment, talk to other about other subject, relaxation techniques, use drugs or alcohol etc.

_____
Score

b) Cognitive Control/ Self-statement e.g: Reinterpretation/reframing, self-reassurance, control statements ('don't think about that', switching to other thoughts etc.

_____

Score

c) Reappraisal e.g: Reliving or reconsidering experience, reality testing actions or discussions with other people etc.

_____

Score

d) **Rumination** e.g: Intellectualisation, mulling over experience, involuntary rumination etc.

_____

Score

e) 'Immersion' e.g: Acting in accordance with initial interpretation of experience, including speech, behaviour or silently resisting experience.

_____

Score

f) **Neutral response** e.g: Acceptance of anomaly, ignoring anomaly (not active avoidance), enjoying anomaly (not active pursuit of it), sharing experience (not reappraising or reality testing.) etc.

_____
Score

J) Context and Implications of Appraisal

7. ***Self-esteem:*** What effect did this experience have on how you saw yourself? Did it make you see yourself in a better light, make you feel worse about yourself or not have any effect?

1	2	3	4	5
greatly ↓	slightly ↓	neutral	slightly ↑	greatly ↑

8. ***Perceived social understanding:*** Did you feel your experience would be understood by your social group, or did you feel it would be best to keep quiet about it?

   If yes: Do you think they had a similar experience themselves? (0=no, 1=yes)

1	2	3	4	5
def kept quiet	best to keep quiet	unsure	suspect understand	def understand

9. ***Perceived controllability:*** When you first experienced [this], how much control did you have over the experience? For example, could you stop the experience when you wanted, or did you deliberately elicit it? (0=no, 1=yes)

   1 (none) 2 (minimal) 3 (some) 4 (mostly) 5 (total control)

10. ***Attempted Control:*** Did you try to control it? Control your reaction or what you thought about it? In what ways?

    1 (not at all) 2 (a little) 3 (some) 4 (a lot) 5 (total effort)

11. ***Premorbid awareness:*** Were you aware that these experiences could occur before it happened to you? (0=no, 1=yes)
    a. If yes: When it happened, did you know what was happening because of this information you had?

1	2	3	4	5
no prior awareness	a little/ general	a little/ specific	a lot/ all about specific	knew

12. ***Tolerance of cognitive dissonance/Intellectual involvement***: When [this] first happened, was it inconsistent with how you'd understood the world? Did you think that it was impossible, or feel very confused, puzzled or surprised? (0=no, 1=yes)

    a. If YES: Was it important to you to work out what was going on, or did you take it at face value?

       _____

_____
_____
_____

b. Did you think about it a lot, trying to understand, or did you avoid trying to work it out? (0=no, 1=yes)
    i. If NO: Did you feel as though you had reached a new or better understanding of the world? (0=no, 1=yes)
        1. Did you think about this new understanding a lot, trying to work out the details, or did you feel it was not important?

    ii. If YES: Did you think a lot about why or how your experience had happened, or what it meant?
    iii.

1	2	3	4	5
not at all [0%]	a little [1-19%]	some [20-49%] rumination	a lot of [50-89%] rumination	crucial [90-100%] need to understand

** Percentages given as the percentage of time spent thinking about the anomaly**

Record Comments here:
_____
_____
_____
_____
_____
_____
_____

K) Alternative Interpretations

2. I want to ask you about some other ways of explaining what you experienced, and whether you agree that they are valid explanations or not:

Probe for endorsement of other frameworks of interpretation other than that mentioned spontaneously. Clarify responses to enable rating each**: ('definitely valid' = 2, 'perhaps'=1, 'definitely not valid'=0).**

9. Psychological: Do think it is possible that your experience(s) was caused by your mind, in that there are psychological reasons or explanations for it? 0 1 2
10. Drug-related: Do you think that your experience was in any way related to drug use? 0 1 2
11. Spiritual: Do think that there may have been spiritual elements or processes involved in your experience(s)? 0 1 2
12. Biological: Do you think it is possible that your experience(s) could be the result of some illness, disorder, or medical issue? 0 1 2
13. Supernatural: Do you think it is possible that supernatural factors were involved in your experience, such as invisible or other- worldly beings, agencies or forces?

0 1 2

14. Normalising: Do you think it is possible that your experience(s) could be normal or could reflect a natural capacity of human beings? 0 1 2
15. Other people: Do you think it is possible that your experience(s) were deliberately caused by other people? 0 1 2
16. No interpretation: Do you think that your experience(s) has/have no explanation? 0 1 2

L) Did you derive a sense of purpose or meaning from this experience? (0=no, 1=yes)

_____
_____
_____

FICA Spiritual History Tool

F-Faith and Belief

1. Do you consider yourself spiritual or religious? Please describe what you believe in.

   _____
   _____
   _____
   _____
   _____
   _____

2. Do you have spiritual beliefs that help you cope with stress?

   _____
   _____
   _____
   _____
   _____
   _____
   _____

3. What gives your life meaning?

   _____
   _____
   _____
   _____
   _____
   _____
   _____

I-Importance

1. What importance does your faith or belief have in your life?

   _____
   _____
   _____
   _____
   _____
   _____
   _____

2. Have your beliefs influenced you in how you handle stress? How so?

_____
_____
_____
_____
_____
_____
_____

3. Do you have specific beliefs (positive or negative) that might influence your health (Physical/Mental)?

_____
_____
_____
_____
_____
_____
_____

C-Community

1. Are you part of a spiritual or religious community? Can you tell me more about your participation in the community? How are you connected?

_____
_____
_____
_____
_____
_____
_____

2. Does your religious/spiritual community provide support to you? If yes: How?

_____
_____
_____
_____
_____
_____
_____

A-Appraisals

1. Have your spiritual or cultural beliefs ever affected how you make sense of any of the unusual experiences we discussed today?

_____
_____
_____
_____
_____
_____
_____

Family History and Development

1. Is your family religious/spiritual? How do you think your spirituality was influenced or shaped by your family?

   _____
   _____
   _____
   _____
   _____
   _____
   _____

2. Have your religious/spiritual beliefs changed over time?

   _____
   _____
   _____
   _____
   _____
   _____
   _____

3. Have you had a significant spiritual experience that was transformative or influential?

   _____
   _____
   _____
   _____
   _____
   _____
   _____

APPENDIX C: Anomalous Experiences Descriptions

Descriptions of Psychotic-Like Experiences (Brett et al 2007)

Type of Psychotic-Like Experience	Description
Receptivity	Any kind of experience of 'made' thoughts, emotions or sensations, or someone else's subjective experience being experienced as one's own. Feeling emotions that are actually those of other people, or feeling other people's pains.
Thought Withdrawal	Disruptive interference in thinking, from outside, causing loss of thoughts.
Passivity	Experiences of being guided or controlled externally in a general sense (across action/decisions in general), or behaving automatically (i.e. without a sense of external control).
Voice Experiences (Auditory Hallucinations)	Any experience of voices speaking, music playing, or other distinct sounds.
Depersonalization /Dissociation	Being detached from oneself, so that it is as if watching oneself behave, or hearing oneself talk when speaking. This is distinguished from normal states of daydreaming by specifying that the experience is in a state that is not under conscious control. Also includes
Derealization	Related to delusional mood: sense of something strange, different or wrong with the world and events in it.
Somatic Anomalies	Unusual sensations in the body or head, including pressure, rotation, heat/cold, electrical sensations, vibration, reversed lateralization (e.g. left/right feel as though they have been swapped), pain.
Lost Automatic Skills	The experience of a change in the ability to carry out well-known tasks automatically and without deliberate deployment of attention. The experience may also be

	linked to a difficulty in dividing attention, or changes in memory.
Language Disturbance	Experience of a change in the comprehension of spoken (or written) language such that it becomes difficult to grasp the meaning of a sentence, although the component words have been heard
Loss of Thought/Thought Blocking	The experience of thoughts stopping, fading away, or the train of thought being lost. This must have been subjectively noticed, and should be reported as happening more than would be expected in some period of time
Insight Experiences	Sense of revelation or insight that accompanies the experience. Cognitions of this quality frequently concern fundamentals, such as the nature of reality, the functioning of society, the nature of the self.
Mission Experience	A sense of compulsion or inescapable duty, which distinguishes the related but less intense experience of the feeling of vocation.
Spiritual Elation	A subjective feeling of lightness, of elation that goes beyond excitement in response to a rewarding event.
Loss of Emotion	The total loss of feeling, numbness, or a sense of detachment or unreality of emotions.
Precognition	Experiences of precognition over any timescale: e.g. instantaneous precognition, or over several weeks/years. It may or may not be related by the individual to activity experiences (if it is it should be rated in both categories). Precognitive dreams as well as experiences of déjà vu when the earlier precognitive event cannot be located in time, are also included.
Reference Experiences	Experiences ranging from occasional 'synchronicities' or 'serendipity' to delusional perception and continuous referential thinking (i.e. experience comments or events as being strangely familiar, and as standing out, or pertaining to them in some way, rather than having any clear meaning or specifically reflecting their own thoughts)
Thought Transmission	The spectrum of telepathy from sensing mental state to thought broadcast, but only comprising experiences of

	the experient's thoughts being transmitted out. The experience of seeing people react to your thoughts and wondering if they have picked up your thoughts.
Visual Anomalies (Visual Hallucinations)	Experience of seeing something that other people couldn't see, or seeing someone's aura/ other manifestation of energy.
Out of Body Experiences	Experience of looking at your body from outside
Captivation/Fixation	Attention gets caught or fixed on something or feeling drawn to something that stands out in the environment.
Paranoia/ Hypervigilence	Experience of feeling monitored or watched, or otherwise the subject of external attention, when there is no obvious cause.

APPENDIX D: Coding Manual

Appraisals Study Code Manual

Cognitive models of psychosis hold that levels of distress are informed by the cognitive appraisal (i.e. personal interpretation) of the experience (Taylor, Parker, Mansell & Morrison, 2013; Morrison, 2001; Garety et al 2001; Chadwick & Birchwood, 1994). The cognitive appraisal process involves searching for meaning or an explanation for the odd experience. As you read each transcript, it is important to correctly identify comments that reflect appraisals of the experience being described. Once you identify the comments, use this guide to code for the type of appraisal. If you find a comment that does not fit the categories already listed, you may fill in one and provide your rationale for creating a new code.

1. **Trauma**-Code for Trauma Hx Yes (Y) Or No (N)

2. **Type of Experience** –Before you start identifying and coding comments, you must first identify the type of experience which is found within the interview. Below are the experiences that meet criteria for further analysis: (e.g. I saw a shadowy figure in the corner= 2M)
    A. Receptivity
    B. Passivity
    C. Voice Experiences
    D. Depersonalization/Derealization/ Dissociative Experiences
    E. Somatic Anomalies
    F. Thought Blockages
    G. Insight Experiences
    H. Mission Experiences
    I. Spiritual Elation
    J. Precognition
    K. Reference Experiences
    L. Thought Transmission
    M. Visual Anomalies (Hallucinations)
    N. Out of Body Experiences
    O. Captivation/Fixation
    P. Other (specify)
    Q. Paranoia/Hypervigilance

3. APPRAISALS

3.1 Type of appraisal/Framework of interpretation

a. **Biological**-For interpretations in terms of illness, disorder, or any material, internal attribution of cause: e.g. 'something wrong'; 'my neurological system'; 'my brain unbalancing'
b. **Normalizing**- For interpretations in terms of the normal, natural range of human capacities, experiences or processes. e.g. 'I just thought they were like episodes of ESP …you know…'cos probably in our lifetime we have quite a few of those…so it's no big deal, everybody probably has…'
c. **Psychological**-For interpretations in terms of mental processes, or any nonmaterial, internal attribution of cause, with the exclusion of spiritual or religious processes: e.g. 'It's to do with me detaching from that situation'; 'it's just a mindfuck I got into'; 'It's my mind playing tricks on me'
d. **Spiritual**-For interpretations in terms of spiritual or religious processes, where the experiences are seen as having an intrinsic spiritual value of some kind*: e.g. 'It was an awakening experience';
e. **Other people**-For interpretations in terms of other people causing the experiences/ i.e. paranoid/conspiracy interpretations
f. **Supernatural**-For interpretations in terms of non-material entities or forces: e.g. 'I could feel the hands of invisible beings on my back'
g. **Drug Related**-For interpretations that cite the use of drugs as being relevant: e.g. 'It might be to do with my having taken so many drugs over the last 7 years'; 'I think having those experiences on drugs made me more likely to see these things'
h. **No interpretation/I don't know**-When no interpretation is offered at all, or the person says: 'I didn't know' or 'I wasn't sure what it was'.
i. **Other** -Includes other subjective interpretations of what was happening (i.e. I thought somebody was breaking into my house)
j. Family/Cultural Spiritual Influence/Interpretation-When a family or cultural belief is given or noted as an influence on subjective interpretation

3.2. Context of Appraisal- How the participant was feeling before the experience occurred/relevant life circumstances

a. Emotional Distress that facilitates the experience (i.e. depression/anxiety)
b. Meditation/Relaxed state
c. Elated
d. Exhaustion/Fatigue
e. Feeling vulnerable
f. Feeling stuck/beyond control
g. Social Isolation
h. Spiritual Practice
i. Boredom
j. Other (Specify in criteria section)

3.3 Cognitive Appraisal (Specific content of the appraisal)

a. Puzzlement
   i. I was trying to figure out what was happening
   ii. Questioning
   iii. Confused
   iv. Attempt to reason within/sort thoughts/make sense of experience

b. Immersion
   i. I thought it was really happening

c. Reality Testing (An attempt to make sense of what's happening/ orient self)
   i. I must be crazy
   ii. This is all in my head
   iii. Came up with a rational explanation- (i.e..Dad must be home OR It must be the wind)

   iv. Other idiosyncratic/subjective explanation

d. Neutral
   i. I didn't think much of it

e. I don't know
   i. I don't know what was happening

f. Insight/Awareness
   i. I know I'm hearing/seeing things
   ii. I'm hallucinating

g. Other (specify other cognitive response)

h. Denial/Ambivalence
   i. denial-I believed it happened but it can't be real
   ii. ambivalence-I'm not sure, it might be real, but it might not be

3.4 Valence of Appraisal
   a. Positive- I thought it was a good sign
   b. Negative- I thought it was a bad sign
   c. Neutral- Neither positive or negative/ Not sure

4. EMOTIONAL RESPONSE (What was the participant feeling as a result of the experience?)

a. Positive emotions
   i. Euphoria/excitement
   ii. Happiness
   iii. Laughter
   iv. Other positive emotion (ie. powerful)

b. Negative Emotions
   i. Fear
   ii. Anxiety
   iii. Anger/frustration
   iv. Distress
   v. Uncomfortable
   vi. Stuck
   Vii. Out of control

c. Confusion/Neutral
   i. Surprise
   ii. Curiosity
   iii. Confusion/puzzled
   iv. Shocked

d. No feeling Neutral
   i. I didn't feel anything
   ii. I was in the middle
   iii. Indifferent

5. BEHAVIORAL RESPONSE (What did the participant do in response to their understanding of the experience?)

a. Avoidance
   i.I ignored it
   ii. I walked away

b. Cognitive control
   i. Tried to put my mind on something else
   ii. Told myself to stop thinking about it
   iii. I brushed it off
   iv. Tried to distract myself

d . Reappraisal (Not to be confused with reality testing. Changing from one appraisal to another. Must have already made a conclusion and then change mind.
   i. I thought it was one thing then I changed my idea of what was happening

e. Rumination
i. I couldn't stop thinking about it
ii. I tried really hard to make sense of it

f. Immersion-Engaging with the experience such that emotional/behavioral response matches with the interpretation of the experience
i. I interacted with to it (ie. speaking, touching)
ii. I started praying so it could go away
iii. I screamed because I was afraid

g. Reality Testing -Person makes an effort to orient themselves to where they are
i. I wasn't sure so I investigated/checked it out
ii. Tried to figure out what was happening before I made a conclusion
iii. Checked in with others around me to see if they experienced the same thing

h. Nothing
i. Didn't do anything

i. Physiological Response (Has to be in response to the experience not part of the experience itself)
i. Frozen/Couldn't move
ii. Shaking
iii. Pain
iv. Numbness/Tingling

j. Told someone else about what happened. (Purely sharing, not an attempt to reality test)

6. SPIRITUALITY

6.1 Spiritual Identity

a. I am a very spiritual person
b. I am a religious person (names specific religious affiliation)
c. I am spiritual but not religious
d. I am agnostic
e. I am not sure/questioning
f. I'm an Atheist
g. I think of myself as more scientific
h. Don't identify as religious but engage in religious practices
i. My family is religious
j. My family is not Religious/Spiritual
k. I'm not religious/I don't believe in religion

6.2. Community

a. I belong to a religious community
b. I don't belong to a religious community
    i. I practice my faith/beliefs on my own
c. I used to belong to a community but don't anymore

6.3. Spiritual Practice

a. I attend a church/mosque
b. I pray/chant, etc
c. Read Bible/Quran (other religious literature)
d. Other spiritual/religious activities (i.e. fasting)
e. Other Community Practice

6.4. Spiritual Values/Beliefs

a. Spiritual practice helps me feel better
b. My faith is important to me
c. I derive meaning from my spiritual beliefs.
d. The way I live my life is influenced by my spiritual/religious beliefs.
e. Other-Names other moral/spiritual values

6.5 Spiritual Development

a. My family's religious/spiritual beliefs influenced me.
    i. I was raised religious
b. Names family religious practice
c. My family's religious practice changed.
d. My views have changed
    i. I used to be religious but I'm not anymore
    ii. I wasn't religious at first, but now I am
    iii. I was religious but now I'm not sure
    iv. I now see myself as more spiritual
e. Other: Names family or cultural belief/values

APPENDIX E: Self-Report Measures

Sociodemographic Questionnaire

Please respond to the following items below.

1. Age _____

2. Gender: Male _____ Female _____

3. Racial/ethnic background. Please choose one category that best captures how you see yourself.

- **Black (born in African)**_____
- **Black (born in USA)**_____
- Caribbean/West Indian_____
- Asian/Pacific Islander_____
- **Hispanic/Latino** _____
- Native American _____
- **Biracial or multi-racial** _____
- White/Caucasian _____
- Middle Eastern _____
- **Other -please specify**_____

4. Were you born in the United States **(50 States only, not including territories and commonwealths)?**
Yes _____ No _____

5. If your answer to question 4 is "No" and you were **not born** in the United States, where were you born? _____

5a. How old were you when you came to the US? _____

6. Were both your parents born in the United States? (**50 States only, not including territories and commonwealths)?** Yes _____ No ____

a) If not, please list the countries in which your parents were born:

Mother: _____

Father: _____

7. What religious affiliation do you hold?

- **Baptist-All type**
- **Protestant**
- **Lutheran**
- **Methodist**
- **Pentecostal**
- **Catholic**
- **Presbyterian**

- **Christian-non-denominational**
- **Jewish**
- **Islamic**
- **Buddhist**
- **Other**

7a. Other religious affiliation - please specify? _____

8. How often do you attend religious services?

Seldom _____ Sometimes _____ Often _____

9. How important is your religion to you?

Not important _____ Somewhat important_____ Very important _____

10. What is the best estimate of <u>your yearly income</u> before taxes?

- **Less than $2,000**
- **$2,000-2,999**
- **$3,000-3,999**
- **$4,000-4,999**
- **$6,000-6,999**
- **$7,000-7,999**
- **$8,000-8,999**
- **$9,000-9,999**
- **$10,000-12,499**
- **$12,500-14,999**
- **$15,000-16,999**
- **$17,000-19,999**
- **$20,000-24,999**
- **$25,000-34,999**
- **$35,000-49,999**
- **$50,000-69,999**
- **$70,000-99,999**
- **$100,000 and over**

10b. what is the best estimate of <u>your family's yearly income</u> before taxes?

- **Less than $2,000**
- **$2,000-2,999**
- **$3,000-3,999**
- **$4,000-4,999**
- **$6,000-6,999**
- **$7,000-7,999**
- **$8,000-8,999**
- **$9,000-9,999**
- **$10,000-12,499**
- **$12,500-14,999**
- **$15,000-16,999**
- **$17,000-19,999**
- **$20,000-24,999**

- **$25,000-34,999**
- **$35,000-49,999**
- **$50,000-69,999**
- **$70,000-99,999**
- **$100,000 and over**

PQ

Indicate how often you have had the following thoughts, feelings and experiences on average, in the last month, by choosing the appropriate answer on the scale for each item. Do not include experiences while using alcohol, drugs or medications.

For any item response greater than 0, please indicate if that experience has been distressing to you. Please answer all of the questions, and if you are unsure, choose the answer that you think is best.

Indicate that you have read the above instructions: Yes or No
*For each Question choose one of the following answers: 0-----1-2 times-----once/week-----few Times/week-----*daily *and distress Yes/NO*

The Items Comprising the Positive Symptoms Subscale are ***BOLDED (45 items)*

Question
In the last month:
i. Indicate that you have read the above instructions: Yes or No
1. I have been distracted by noises or other people talking.
2. The passage of time has felt unnaturally faster or slower than usual.
3. I have had difficulty organizing my thoughts or finding the right words.
4. When I looked at a person or at myself in a mirror, I have seen the face change right before my eyes.
5. I have noticed strange feelings on or just beneath my skin, like bugs crawling.
6. I have not gotten along well with people at school or at work.
7. Previously familiar surroundings have seemed strange, confusing, threatening or unreal.
8. I seemed to live through events exactly as they happened before (déjà vu).
9. I have smelled or tasted things that other people didn't notice.
10. I have had difficulty concentrating, listening or reading.
11. I have had troubles at school or work.
12. I have thought that other people could read my mind.
13. I have heard things other people couldn't hear like voices of people whispering or talking.
14. I have had difficulty expressing my feelings as well as I used to.
15. I have had difficulty expressing my feelings as well as I used to.
16. I have noticed a sense of not knowing who I am.
17. I have noticed that I am less interested than I used to be in keeping clean or dressing well.
18. I have heard unusual sounds like banging, clicking, hissing, clapping or ringing in my ears.
19. I have mistaken shadows for people or noises for voices.
20. Things have appeared different from the way they usually do (brighter or duller, larger or smaller, or changed in some other way).

21. I have been very quiet and have kept in the background on social occasions.
22. People have stared at me because of my odd appearance.
23. I have wandered off the topic or rambled on too much when I was speaking.
24. I have had experiences with telepathy, psychic forces, or fortune-telling.
25. I have thought that other people had it in for me.
26. My sense of smell has seemed unusually strong.
27. I have felt that I was not in control of my own ideas or thoughts.
28. I have felt unhappy or depressed.
29. Everyday things have affected me more than they used to.
30. I have thought that I am very important or have abilities that are out of the ordinary.
31. Other people have thought that I was a little strange.
32. My thoughts have seemed to be broadcast out loud so that other people knew what I was thinking.
33. I have had nothing to say or very little to say.
34. I have felt unusually sensitive to noise.
35. I have had superstitious thoughts.
36. I have heard my own thoughts as if they were outside of my head.
37. I have had trouble focusing on one thought at a time.
38. I have felt that other people were watching me or talking about me.
39. I have gotten very nervous when I had to make polite conversation.
40. People have commented on my unusual mannerisms and habits.
41. I have been less interested in school or work.
42. I have found it hard to be emotionally close to other people.
43. I have avoided social activities with other people.
44. I have felt very guilty.
45. I have thought that I am an odd, unusual person.
46. I have thought that things I saw on the TV or read in the newspaper had a special meaning for me.
47. My moods have been highly changeable and unstable.
48. I have felt unable to enjoy things that I used to enjoy.
49. My thinking has felt confused, muddled, or disturbed in some way.
50. I have felt suddenly distracted by distant sounds that I am not normally aware of.
51. I have been talking to myself.
52. I have had the sense that some person or force was around me, even though I could not see anyone.
53. I have been in danger of failing out of school, or of being fired from my job.
54. I have engaged in some eccentric (odd) habits.
55. I have been worried that something may be wrong with my mind.
56. I have felt that I didn't exist, the world didn't exist, or that I was dead.
57. I have been confused whether something I experienced was real or imaginary.
58. People have found me to be aloof and distant.
59. I have tended to keep my feelings to myself.
60. I have experienced unusual bodily sensations such as tingling, pulling, pressure, aches, burning, cold, numbness, shooting pains, vibrations or electricity.

61. I have thought about beliefs that other people would find unusual or bizarre.
62. People have said that my ideas were strange or illogical.
63. I have felt worthless.
64. I have felt that parts of my body had changed in some way, or that parts of my body were working differently than before.
65. My thoughts have been so strong that I could almost hear them.
66. I have not been very good at returning social courtesies and gestures.
67. I have seen special meanings in advertisements, shop windows, or in the way things were arranged around me.
68. I have picked up hidden threats or put-downs from what people said or did.
69. I have used words in unusual ways.
70. I have felt angry, easily irritated or offended.
71. I have felt like I was looking at myself as in a movie, or that I was a spectator in my own life.
72. I have been less able to do usual activities or tasks.
73. I have not been sleeping well.
74. I have felt that some person or force interfered with my thinking or put thoughts into my head.
75. I have had experiences with the supernatural, astrology, seeing the future or UFOs.
76. People have dropped hints about me or said things with a double meaning.
77. I have been concerned that my closest friends and co-workers were not really loyal or trustworthy.
78. I have had little interest in getting to know other people.
79. I have seen unusual things like flashes, flames, blinding light or geometric figures.
80. I have been extremely anxious when meeting people for the first time.
81. I have felt like I was at a distance from myself, as if I were outside my own body or that a part of my body did not belong to me.
82. I have found that when something sad happened, I was no longer able to feel sadness, or when something joyful happened, I could not feel happy.
83. I have been crying.
84. I have seen things that other people apparently couldn't see.
85. I have felt unable to carry out everyday tasks because of fatigue or lack of motivation.
86. Everyday things have been more stressful than before, like school or work, social situations, deadlines or changes in a schedule.
87. I have avoided going to places where there were many people because I get anxious.
88. I have felt more nervous or anxious, and have found it hard to relax.
89. I have felt uninterested in the things I used to enjoy.
90. People have found it hard to understand what I say.
91. I have had trouble remembering things.
92. People have said that I seemed 'spacey' or 'out of it.'
93. I have felt like I had lost my sense of myself or felt disconnected from my life.
94. I have felt afraid.
95. In the past month I have received counseling or mental health services, or sought out help for emotional/psychological difficulties.

Life Events Checklist

Listed below are a number of difficult or stressful things that sometimes happen to people. For each event, check one or more of the boxes to the right to indicate that: (a) It happened to you personally, (b) you witnessed it happen to someone else, (c) you learned about it happening to someone close to you, (d) you're not sure if it applies to you, or (e) it doesn't apply to you.

Be sure to consider your entire life (growing up, as well as adulthood) as you go through the list of events.

1. Natural disaster (for example, flood, hurricane, tornado, earthquake)

- It happened to you personally
- you witnessed it happen to someone else>
- you learned about it happening to someone close to you
- you're not sure if it applies to you
- it doesn't apply to you

2. Fire or explosion

- It happened to you personally
- you witnessed it happen to someone else>
- you learned about it happening to someone close to you
- you're not sure if it applies to you
- it doesn't apply to you

3. Transportation accident (for example, car accident, boat accident, train wreck, plane crash

- It happened to you personally
- you witnessed it happen to someone else>
- you learned about it happening to someone close to you
- you're not sure if it applies to you
- it doesn't apply to you

4. Serious accident at work, home, or during recreational activity

- It happened to you personally
- you witnessed it happen to someone else>
- you learned about it happening to someone close to you
- you're not sure if it applies to you
- it doesn't apply to you

5. Exposure to toxic substance (for example, dangerous chemicals, radiation)

- It happened to you personally
- you witnessed it happen to someone else>
- you learned about it happening to someone close to you
- you're not sure if it applies to you
- it doesn't apply to you

6. Physical assault (for example, being attacked, hit, slapped, kicked, beaten up)

- It happened to you personally
- you witnessed it happen to someone else>
- you learned about it happening to someone close to you
- you're not sure if it applies to you
- it doesn't apply to you

7. Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)

- It happened to you personally
- you witnessed it happen to someone else>
- you learned about it happening to someone close to you
- you're not sure if it applies to you
- it doesn't apply to you

8. Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)

- It happened to you personally
- you witnessed it happen to someone else>
- you learned about it happening to someone close to you
- you're not sure if it applies to you
- it doesn't apply to you

9. Other unwanted or uncomfortable sexual experience

- It happened to you personally
- you witnessed it happen to someone else>
- you learned about it happening to someone close to you
- you're not sure if it applies to you
- it doesn't apply to you

10. Combat or exposure to a war-zone (in the military or as a civilian)

- It happened to you personally
- you witnessed it happen to someone else>
- you learned about it happening to someone close to you
- you're not sure if it applies to you
- it doesn't apply to you

11. Captivity (for example, being kidnapped, abducted, held hostage, prisoner of war)

- It happened to you personally
- you witnessed it happen to someone else>
- you learned about it happening to someone close to you
- you're not sure if it applies to you
- it doesn't apply to you

12. Life-threatening illness or injury

- It happened to you personally
- you witnessed it happen to someone else>
- you learned about it happening to someone close to you
- you're not sure if it applies to you
- it doesn't apply to you

13. Severe human suffering

- It happened to you personally
- you witnessed it happen to someone else>
- you learned about it happening to someone close to you
- you're not sure if it applies to you
- it doesn't apply to you

14. Sudden, violent death (for example, homicide, suicide)

- It happened to you personally
- you witnessed it happen to someone else>
- you learned about it happening to someone close to you
- you're not sure if it applies to you
- it doesn't apply to you

15. Sudden, unexpected death of someone close to you

- It happened to you personally
- you witnessed it happen to someone else>
- you learned about it happening to someone close to you
- you're not sure if it applies to you
- it doesn't apply to you

16. Serious injury, harm, or death caused to someone else

- It happened to you personally
- you witnessed it happen to someone else>
- you learned about it happening to someone close to you
- you're not sure if it applies to you
- it doesn't apply to you

17. Any other stressful event or experience

- It happened to you personally
- you witnessed it happen to someone else>
- you learned about it happening to someone close to you
- you're not sure if it applies to you
- it doesn't apply to you

Brief RCOPE

The following items deal with ways you coped with a negative event in your life. There are many ways to try to deal with problems. These items ask what you did to cope with this negative event. Obviously different people deal with things in different ways, but we are interested in how you tried to deal with it. Each item says something about a particular way of coping. We want to know to what extent you did what the item says (How much or how frequently). Don't answer on the basis of what worked or not-just whether or not you did it. Use these response choices. Try to rate each item separately in your mind from the others. Make your answers as true FOR YOU as you can. Select the answer that best applies to you.

	Not at all	Somewhat	Quite a bit	A great deal
1. Looked for stronger connection with God	1	2	3	4
2. Sought God's love and care	1	2	3	4
3. Sought help from God in letting go of my anger	1	2	3	4
4. Tried to put my plans into action together with God	1	2	3	4
5. Tried to see how God might be trying to strengthen me in this situation	1	2	3	4
6. Asked forgiveness for my sins	1	2	3	4
7. Focused on religion to stop worrying about my problems	1	2	3	4
8. Wondered whether God had abandoned me	1	2	3	4
9. Felt punished by God for my lack of devotion	1	2	3	4
10. Wondered what I did for God to punish me	1	2	3	4
11. Questioned God's love for me	1	2	3	4
12. Wondered whether my church had abandoned me	1	2	3	4
13. Decided the devil made this happen	1	2	3	4
14. Questioned the power of God	1	2	3	4

Daily Spiritual Experiences Scale (DSES)

The list that follows includes items you may or may not experience. Please consider how often you directly have this experience, and try to disregard whether you feel you should or should not have these experiences. A number of items use the word 'God.' If this word is not a comfortable one for you, please substitute another word which calls to mind the divine or holy for you.

Please indicate what reflects the best choice for each question.

	Many times a day	Every day	Most days	Some days	Once in a while	Never
I feel God's presence.						
I experience a connection to all of life.						
During worship, or at other times when connecting with God, I feel joy which lifts me out of my daily concerns.						
I find strength in my religion or spirituality.						
I find comfort in my religion or spirituality.						
I feel deep inner peace or harmony.						
I ask for God's help in the midst of daily activities.						
I feel guided by God in the midst of daily activities.						
I feel God's love for me, directly.						
I feel God's love for me, through others.						
I am spiritually touched by the beauty of creation.						
I feel thankful for my blessings.						
I feel a selfless caring for others.						
I accept others even when they do things I think are wrong.						
I desire to be closer to God or in union with the divine.						

	Not at all	Somewhat close	Very close	As close as possible
In general, how close do you feel to God?				

Stress Appraisal Measure (SAM)

Instructions. This questionnaire will deal with how you think and feel about the stressful events that you encounter. So, for the purpose of this questionnaire, please tell us how you generally think and feel when you encounter stressful events. With this in mind, read each statement below and then circle the appropriate answer on the scale provided for you. Use the following scale to indicate how well each statement describes how you think and feel.

0= not at all
1= a little bit
2= about half the time
3= the majority of the time
4= a great amount

Now please respond to the statements below.

1. I have the ability to overcome stress.	0	1	2	3	4
2. I perceive stress as threatening.	0	1	2	3	4
3. I feel totally helpless.	0	1	2	3	4
4. There is someone I can turn to for help.	0	1	2	3	4
5. I can positively attack stressors.	0	1	2	3	4
6. I have what it takes to beat stress.	0	1	2	3	4
7. I feel anxious.	0	1	2	3	4
8. Stressful events impact me greatly.	0	1	2	3	4
9. It is beyond my control.	0	1	2	3	4
10. There is help available to me.	0	1	2	3	4
11. I am eager to tackle problems.	0	1	2	3	4
12. The outcome of stressful events is negative.	0	1	2	3	4
13. The event has serious implications for my life.	0	1	2	3	4
14. No one has the power to overcome stress.	0	1	2	3	4
15. I feel I can become stronger after experiencing stress.	0	1	2	3	4
16. I have the skills necessary to overcome stress.	0	1	2	3	4
17. Stress has a negative impact on me.	0	1	2	3	4
18. There are long-term consequences as a result of stress.	0	1	2	3	4
19. I am excited about the potential outcome.	0	1	2	3	4

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