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Walden University

College of Social and Behavioral Sciences

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Latasha Williams

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Review Committee
Dr. Rolande Murray, Committee Chairperson, Psychology Faculty
Dr. Barry Linden, Committee Member, Psychology Faculty
Dr. Tracy Marsh, University Reviewer, Psychology Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2018

Abstract

The Relationship Between Religious Practices and Delusional Content of Christians with Schizophrenia

by

Latasha Williams

Dissertation Submitted in Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy Psychology

Walden University

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Abstract

Religious beliefs and practices are an important source of symptom relief for individuals with schizophrenia; however, it can also be a debilitating source of symptom exacerbation. This quantitative study examined the cognitions and religious life orientations of Christian individuals both with and without a diagnosis of schizophrenia, as measured by the Rust Inventory of Schizotypal Cognitions (RISC) and the Religious Life Inventory (RLI) to examine a baseline for healthy religious cognitions. The aberrant-salience and attribution theories were used to explore the relationship between psychotic stimuli and religious attributions. One hundred and thirty Christian individuals from an outpatient mental health facility, both with and without a diagnosis of schizophrenia completed the RISC and the RLI. A *t*-test showed that individuals with schizophrenia scored higher on average on the schizotypal cognitions continuum than individuals without a diagnosis. The results of an ANOVA indicated that individuals with a Quest religious life orientation rendered higher scores on the schizotypal cognitions scale. This research study showed that higher levels of schizotypal cognitions were associated with low religiosity. Overall, individuals with schizophrenia showed no difference in religiosity compared to individuals without schizophrenia. This study addressed the stigma of religious practice among individuals with schizophrenia. Results of this study have positive social implications for individuals with schizophrenia and their practitioners/clergy who incorporate religion as a coping method for symptom relief.

The Relationship Between Religious Practices and Delusional Content of Christians with Schizophrenia

by

Latasha Williams

Dissertation Submitted in Partial Fulfillment of the Requirements

of the Degree of Doctor of Philosophy

in Clinical Psychology

Walden University

November 2018

Dedication

This dissertation is dedicated to my son Jeremiah Ford. Your presence in my life has inspired me to reach for higher heights. This dissertation is also dedicated to the "Beautiful Girl" who inspired this study.

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Table of Contents

List of Tables v

List of Figures vi

Chapter 1: Introduction to the Study 1

Background 4

Problem Statement 6

Purpose 9

Research Questions and Hypothesis 11

Theoretical Framework 12

Attribution Theory 12

Aberrant Salience Hypothesis 13

Nature of Study 13

Definition of Terms 14

Significance of Study 16

Assumptions and Limitations 17

Scope and Delimitations 19

Summary 20

Chapter 2: Literature Review 21

Introduction 21
Description of the Literature Search 22
Theoretical Framework 23
Attribution Theory and Aberrant Salience Hypothesis 23
Psychotic Experiences in the Normal Population 33
The Evolution and Biological Basis of Schizophrenia 34
The Evolution of Schizophrenia 34
Demon Possession and Schizophrenia 36
Biological Basis of Schizophrenia 41
Religion, Psychoticism and Schizotypal Cognitions 44
Schizotypal Cognitions in the Normal Population 44
Summary 48
Chapter 3: Research Method 50
Introduction 50
Research Design and Rationale 50
Restatement of the Research Questions 53
Methodology 54
Population, Setting and Sample 54
Procedure for Recruitment 55
Instrumentation 57

Instrument for Independent Variable 57
Instrument for Dependent Variable 59
Threats to Validity 61
Ethical Considerations 62
Protection of Participants' Rights 62
Summary 64
Chapter 4: Results 65
Introduction 65
Demographics 66
Preliminary Analysis 68
Research Question 1 69
Research Question 2 70
Research Question 3 72
Descriptive Statistics 77
Summary 79
Chapter 5: Discussion 81
Introduction 81
Interpretation of Findings 82
Schizotypal Cognitions 82

Religious Life Orientation 84

Theoretical Implications 90

Limitations and Recommendations.. 91

Social Change and Application... 94

Recommendations 96

Conclusion 98

References 99

Appendix A 108

Appendix B 110

Appendix C 112

List of Tables

Table 1. Demographic Characteristic of Study Sample……………………………...…68

Table 2. Pearson Correlation Table…………………………………………………..70

Table 3.T-test, Schizotypal Range, Control vs. Schizophrenic…………………....…...71

Table 4. Chi-Square, Control vs. Schizophrenic by Intrinsic vs. Extrinsic………..……72

Table 5. Chi-Square, Control vs. Schizophrenic by Intrinsic vs. Extrinsic vs. Quest..…73

Table 6. T-test, Schizotypal Range, Intrinsic vs. Extrinsic……………………….….…74

Table 7. ANOVA, Schizotypal Range, Intrinsic vs. Extrinsic vs. Quest…………....…75

Table 8. ANOVA, Control Group, Schizotypal Range, Intrinsic versus Extrinsic versus Quest………………………………………………………………………….…....…76

Table 9. ANOVA, Schizophrenic Group, Schizotypal Range, Intrinsic vs. Extrinsic vs. Quest……………………………………………………………………………..…77

Table 10. Predictors of Schizotypal Range……………………………………...…77

List of Figures

Figure1: Number of subjects classified by each of the levels of schizotypal range…....79

Figure2: Schizotypal Range: Control vs. Schizophrenic by Intrinsic vs. Extrinsic vs. Quest……………………………………………………………………………………80

Chapter 1: Introduction to the Study

Schizophrenia affects at least one percent of the world's population and is characterized by hallucinations and delusions, thought disorders, and higher order cognitive dysfunctions. Heritability of schizophrenia is between 60% and 80%, and the fecundity of individuals affected by schizophrenia is reduced (Srinivasan et al., 2016). Individuals may be diagnosed with schizophrenia if they have met two of the following criteria as established by the Diagnostic and Statistical Manual, fifth edition (DSM-V; (American Psychiatric Association, 2013): delusions, hallucinations, disorganized speech, grossly disorganized or catatonic behavior, and negative symptoms (e.g., diminished emotional expression or avolition). Symptoms should last for at least 6 months. In addition to displaying positive and negative symptoms of psychosis, the disturbances should reflect a diminished functioning in the areas of work, interpersonal relations, or self-care that is markedly below the level achieved prior to onset.

Of the positive symptoms of delusions associated with schizophrenia, religious delusions are amongst the most commonly reported (Siddle, Haddock, Tarrier, & Faragher, 2002). Schizotypal cognitions/traits are also inherent in individuals with schizophrenia and are an operational means of identifying psychosis or the propensity for psychosis, in an individual's personality. Johns and Van (2001) defined schizotypal traits as personality traits of experiencing 'psychotic' symptoms, while Joseph, Smith, and Diduca (2002) defined them as aspects of personality that are relevant to the predisposition toward psychotic disorder, namely schizophrenia, as referenced by relevant research. Johns and Van (2001) identified the propensity toward finding

schizotypal symptoms in the normal population, as well as with individuals with schizotypal personality disorder and in individuals with schizophrenia.

The origins of schizophrenia-related symptoms can be traced back over 20,000 years ago within shamanism, and were similar to what would now be considered psychotic symptoms such as hallucinations and delusions in shamans. Shamans were considered the religious leaders of that time (Polimeni & Reiss, 2002). Although religious delusions do not account for all delusions present in individuals with schizophrenia, they are a common form of delusions in individuals with schizophrenia, particularly within cultures with a more powerful religious presence (Kiev, 1963). Also inherent in religious delusions is a belief in angels and demons, to which many individuals with schizophrenia attribute their auditory hallucinations, with many individuals claiming to be possessed by such entities (Siddle et al., 2002). Individuals with religious delusions hold their religious delusions with a greater conviction than nonreligious individuals with schizophrenia (Siddle et al., 2002).

In addition to religious delusions being the most prevalent form of delusions in individuals with schizophrenia, it has also been shown that individuals with religious delusions demonstrated lower overall functioning (which includes social, occupational, and psychological functioning) than individuals with nonreligious based delusions (Siddle et al., 2002). Lower functioning in individuals with schizophrenia who have religious-based delusions is attributed to the more advanced level of conviction to which they adhere to their delusional thoughts and beliefs (Siddle et al., 2002). Lower functioning in individuals with schizophrenia due to religious content in delusions may

also contribute to a reluctance of mental health professionals to promote the incorporation of religious beliefs/practices in the care of these individuals, and it may result in a reduction or elimination of religious practices all together. Hence the development of a social stigma that is not only related to individuals with a diagnosis of schizophrenia but particularly individuals with religious delusions. Social stigma is so critical in today's society that, according to Luhrmann (2012), individuals would rather reduce themselves to being homeless than admit their diagnosis of schizophrenia in order to obtain resources such as food and shelter. Moreover, it is possible that this negative social stigma may also prevent individuals from seeking help when they experience positive symptoms (such as hearing voices) of schizophrenia. By addressing the topic of psychosis from a religious perspective, the religious experiences of individuals with schizophrenia, in comparison to their peers without schizophrenia, can be normalized in a way that encourages the use of religion as a coping method. Consequently, Mohr and Huguelet (2004) mentioned several factors that occur as a result of neglecting the topic of religion in mental health research: "(a) a lack of religiously inclined professionals in psychiatry; (b) a lack of education on religion or spirituality for mental health professionals; and (c) the tendency to pathologize the religious and spiritual dimensions of life by mental health professionals" (p.370).

The implications of social advocacy within the current study can be summarized by a poignant statement given by an individual with schizophrenia recorded from an interview conducted by Mohr and Huguelet (2004),

> I was so ashamed of myself, I have done so many silly things, I was a wreck and I told myself 'I have a dignity in God, I am a person, even if I am schizophrenic, on welfare, I am a person (p.374).

This statement embodies the importance of research that identifies effective ways of integrating religion into the treatment of individuals with schizophrenia in a way that cultivates health and sustains identity and self-esteem, by comparing their cognitive functioning to those of their non-schizophrenia peers.

Background

The theoretical framework of this study is based on the attribution theory, which is derived from a cognitive model for religious delusions. However, the original theory, the attribution theory, to which the cognitive model for religious delusions version is based, refers to the study of perceived causation, and refers to the inferences that individuals make about the cause of behaviors or events (Kelley & Michela, 1980). This theory is related to the biological theory of aberrant-salience, also known as the aberrant salience hypothesis, in that the theory of aberrant-salience suggests that the neurochemical dopamine is biologically responsible for mediating how an individual attributes internal stimuli (Schmidt & Roiser). The aberrant-salience theory suggests that excess dopamine in individuals with schizophrenia causes them to misattribute internal stimuli as occurring externally. Excessive amounts of dopamine causes individuals with schizophrenia to have delusions about their hallucinations (Garety & Freeman, 1999).

Researchers contends that psychotic experiences are not only relegated to individuals with psychosis, but that psychotic experiences can also be found within the

non-psychotic population. According to Slade and Bentall (1988), surveys of hallucinatory experiences suggest that 10% to 25% of the general population have experienced auditory hallucinations at least once in their lifetimes (Bentall, 1999). An individual without schizophrenia may interpret having an auditory hallucination as a lack of sleep, attempt to resolve the matter by getting more sleep, and give the occurrence no further thought (Morrison, 2001). An individual with schizophrenia (and in this case an individual who also has religious delusions) may interpret the hallucination externally and attribute the hallucination to a demon or an angel trying to contact them. This misattribution or interpretation may then lead to maladaptive behaviors such as attempts to have a dialect with said entity, or to protect themselves from being harmed by said entity. This example of the misattribution style of individuals with schizophrenia reflects the position of researchers such as Mohr (2004) who views religious beliefs as a source of symptom exacerbation, rather than a source of symptom mediation. Mohr and Huguelet (2004) presented a cognitive model for the development of religious delusions, based on the attribution theory, and suggested that religious people (in the general population) inherently have an external attribution style that renders them vulnerable to psychotic experiences. Likewise, authors such as Siddle et al. (2002) contended that religious beliefs have the potential to become religious delusions, and that religious beliefs and delusions lie on a continuum. It is this cognitive continuum that was considered throughout the current study.

Problem Statement

The two interrelated theories that undergird this study were the dopamine hypothesis and the aberrant-salience theories. Aberrant-salience theory is a theory that grounds the biological basis of the psychotic experiences of delusions and hallucinations experienced by individuals with schizophrenia. The attribution theory, based on a cognitive model for religious delusions, addresses the outcomes or expression of the biological predisposition for delusions and hallucinations. Aberrant-salience theory addresses the *why* and the attribution theory addresses *what* in regard to the psychotic experiences of individuals with schizophrenia. These theories are related to how individuals with a religious predisposition attribute the origin or cause of psychotic stimuli to religious etiology (e.g., the individual who attributes psychotic stimuli or hallucinations to hearing the voice of God), while individuals with schizophrenia have a predisposition to misattribute both normal and psychotic stimuli as external stimuli, which may be exacerbated when the stimuli is attributed to a religious context, as these hallucinations are held with a deeper conviction (Siddle et al., 2002). Because the literature purports that individuals without a diagnosis of schizophrenia experience psychotic stimuli in the form of religious hallucinations (hearing the voice of God), it can be assumed that an individual with schizophrenia, who inherently has a predisposition for misattribution, would have exacerbated hallucinations when the hallucinations are in a religious context.

The current study examined the similarities between the schizotypal cognitions of the two groups, to discover similarities in the cognitive processes of both groups, in an

effort to find a religious baseline that is considered "normal" for both groups (Modinos et al., 2010).

Polemics between researchers within the literature surrounding religiosity and schizophrenia addresses views that both express a positive and negative relationship of how the use of religion impacts individuals diagnosed with schizophrenia. For instance, Mohr (2010) suggested that religious beliefs and practices both exacerbated delusional content in individuals with schizophrenia and reduced symptoms when used as a means of coping in other instances. Furthermore, Arnold (1993) contended that religious content is one of the main forms of delusions experienced by individuals with schizophrenia. However, the views regarding the negative relationship of religious beliefs and the use of religious practices in individuals with schizophrenia seem to conflict with the cultural views associated with religious beliefs and practices in individuals diagnosed with schizophrenia who ascribe to the Christian faith. For instance, Luhrmann (2012) contended that hearing the voice of God is an acceptable cultural practice in most religious sects and is encouraged as an integral aspect of the Christian faith.

Siddle (2002) investigated the prevalence of religious delusions in a sample of individuals admitted to the hospital with schizophrenia (p.130). The delusional content of individuals with schizophrenia was observed, controlling for religious content, and how the presence of religious content predicted the overall mental well-being of individuals with schizophrenia. The results showed that individuals with religious delusions had lower overall functioning as measured by the Global Assessment of Functioning (GAF). However, studies have not specifically captured the religious content

of individuals who identify as Christian who have religious delusions, and whether this group's religious beliefs contain content involving a belief in demonic activity, which is usually attributed to their delusional content. Furthermore, due to the conflicting evidence of the effectiveness of the use of religion in individuals with schizophrenia as a coping mechanism, it is possible that an individual with schizophrenia who ascribes to cultural beliefs that permit religious practices such as hearing the voice of God and a belief in angels and demons may experience conflicting views regarding the authenticity of their religious experiences when these experiences are reduced to being a manifestation of their schizophrenia diagnosis. This conflict may cause internal conflict if those beliefs and practices are not properly informed by mental health education and information that helps these individuals effectively balance their religious beliefs and practices within the context of their illness.

In other words, it may be necessary to explore at what point their religious beliefs become delusional and detrimental to their mental health status. For this reason, there is a need for research that explores the similarities between the religious beliefs and experiences of Christians with and without a schizophrenia diagnosis. Once that information is ascertained, it may be used to inform ways to effectively incorporate and encourage religious beliefs and practices in individuals with schizophrenia that facilitate their religious beliefs and improve their mental health without exacerbating their symptoms.

A review of the literature shows a correlation between psychoticism and religiosity, as established by White, Joseph, and Neil (1995). According to White et al.

(1995), studies conducted by Francis (1993) and Kay (1981) established evidence that higher religiosity scores are associated with lower psychoticism in adults, adolescents, and children. These findings seemingly contradict the well-established idea that religiosity exacerbates psychoticism (Mohr et al. 2010). However, Francis (1992) contended that psychoticism and religiosity have similar functioning in individuals who are considered *tender-minded*. Francis (1992) believed that the characteristics of psychoticism and religiosity are so similar, they are interrelated in terms of personality. While studies have established a correlation between religiosity and psychoticism, there has not been a clear correlation established between religion and schizotypal cognitions.

The two leading studies examining the correlation between religiosity and schizotypal cognitions were conducted by Joseph and Diduca (2002) and Maltby et al. (2000). Neither study showed clear evidence in support of a correlation between religiosity and schizotypal cognitions. It may be assumed that the psychometric correlations between religiosity and psychoticism would in some way mirror a correlation between religiosity and schizotypal cognitions, as schizotypal cognitions and psychoticism have similar characteristics. However, this assumption was not reflected in the studies conducted to establish a correlation between religiosity and schizotypal cognitions.

Purpose

The purpose of this quantitative study was to examine the cognitions of Christian individuals with a diagnosis of schizophrenia whose Christian beliefs and practices may be distorted by their diagnosis, and vice versa. Moreover, the purpose of the study was to

compare the cognitions of Christian individuals with a schizophrenia diagnosis to their non-schizophrenia counterparts to examine how religious beliefs contribute to schizotypal cognitions. By examining the schizotypal cognitions of individuals who are religious without a schizophrenia diagnosis, a correlation between schizotypal cognitions and religious beliefs was established. Once the correlation between schizotypal cognitions and religious beliefs was established with individuals without a schizophrenia diagnosis; an examination of how a diagnosis of schizophrenia affects schizotypal cognitions that are inherent in individuals who are considered religious was also examined. By examining the schizotypal cognitions inherent in individuals who are religious, a normative baseline was considered for religious individuals who also have a diagnosis of schizophrenia. Ultimately, with more insight and awareness of how their religious beliefs/experiences compare to those without a schizophrenia diagnosis, steps toward conceptualizing their religious beliefs and experiences within a healthy cognitive continuum may allow the individual to use his/her religious beliefs in a way that positively affects their hallucinations, particularly as a coping method. A normative cognitive continuum in an individual with schizophrenia allows the individual to have a baseline in which their religious experiences are comparable to other Christians' and those experiences that are most likely a manifestation of their diagnosis. Moreover, this dissertation may also be used as a tool for both clergy and mental health professionals on how to better serve such individuals by incorporating religion in a positive, symptom reducing way. Furthermore, by understanding the context of how an individual with

schizophrenia processes religious beliefs, the clergy and mental health professionals could tailor their approach when counseling these individuals in a religious context.

Research Questions and Hypothesis

The following research questions and hypotheses have been derived from the review of existing literature regarding the correlation between schizotypal cognitions and religious beliefs. There will be a more detailed discussion of the nature of the study in Chapter 3.

Research Question 1 (RQ1): Is there a statistically significant difference in schizotypal cognitions between Christian individuals with and without a diagnosis of Schizophrenia, as measured by the Rust Inventory of Schizotypal Cognitions (RISC)?

Null Hypothesis ($H_0 1$) There is no difference between schizotypal cognitions of Christians diagnosed with schizophrenia and the schizotypal cognitions of Christians not diagnosed with schizophrenia.

Alternative Hypothesis ($H_a 1$) There is a difference between schizotypal cognitions of Christians diagnosed with schizophrenia and schizotypal cognitions of Christians not diagnosed with schizophrenia.

RQ2. Is there a statistically significant difference of either extrinsic or intrinsic religious orientations between Christian individuals with and without a diagnosis of Schizophrenia, as measured by the Religious Life Inventory (RLI)?

$H_0 2$: There is no significant difference between extrinsic/intrinsic religious orientations of Christians diagnosed with schizophrenia and the extrinsic/intrinsic religious orientations of Christians not diagnosed with schizophrenia.

H_a2: There is a significant difference between extrinsic/intrinsic religious orientations of Christians diagnosed with schizophrenia and the extrinsic/intrinsic religious orientations of Christians not diagnosed with schizophrenia.

RQ3. Is there a statistically significant relationship/correlation between the variables of extrinsic or intrinsic religious orientations and low to extreme schizotypal cognitions as measured by the Religious Life Inventory (RLI)?

H_03: There is no statistically significant relationship/correlation between the variables of extrinsic or intrinsic orientations and low to extreme schizotypal cognitions.

H_a3: There is a statistically significant relationship/correlation between the variables of extrinsic or intrinsic orientations and low to extreme schizotypal cognitions.

Theoretical Framework

The primary theories that grounded this research are the theories of attribution, based on a cognitive model for religious delusions and aberrant-salience. These theories are related to how individuals with a diagnosis of schizophrenia attribute the origin or cause of psychotic stimuli based on their disorder.

Attribution Theory

According to Mohr (2004), the attribution theory is introduced based on a cognitive model for religious delusions, which insists that: religious people demonstrate an attributional style typically different from nonreligious people and that the external attributional style of religious people may lead them to ascribe psychotic experiences to external causes. Mohr (2004) suggests that individuals within religious backgrounds tend to attribute their psychotic experiences to that of a spiritual or religious etiology, such as

experiencing the positive symptom of "inferential thinking" also known as delusions, and attributing such delusions to hearing the voice of God or in some instances, demonic forces. In other words, the cognitive model of the attribution theory suggests that religious individuals are more likely to attribute their psychotic experiences to spiritual/religious occurrences. The attribution theory also aligns with the neurobiological theory known as the aberrant salience hypothesis or aberrant-salience theory (Schmidt & Roiser, 2009).

Aberrant Salience Hypothesis

The aberrant-salience theory is the degree to which events are perceived as personally significant which suggests that increased salience results in psychosis by which neutral experiences are mistakenly endowed with personal meaning (Kapur, 2003). The theory of salience suggests that dopamine is responsible for mediating the way in which an individual gives external context to internal stimulus. Furthermore, it is also theorized that delusions and hallucinations are exacerbated in individuals with schizophrenia due to increased levels of dopamine. Both the Attribution and Salience theories create a framework that suggests that individuals with a hypersensitivity to dopamine activity are more susceptible to misattribute spiritual and religious experience.

Nature of Study

I chose a quantitative study that included the use of survey tools such as the Religious Life Inventory (RLI), and the Rust Inventory of Schizotypal Cognitions (RISC) to compare two Christian groups which included both individuals who did and did not present with schizophrenia. The aforementioned inventories were used to examine a

cognitive continuum comparing the "delusional" cognitions of Christian individuals with schizophrenia to individuals without a schizophrenia diagnosis (Feldman, 1989). This study compared Christians with schizophrenia to Christians without schizophrenia, controlling for schizophrenia for participants at local churches and outpatient clinics. The independent variable was defined as the presence of a schizophrenia diagnosis, and the intervening variable was religious life orientation.

Definition of Terms

Aberrant Perceptions: the beginning stage of psychosis in which an individual assigns meaning to neurological stimuli, without contextual evidence (Kapur, 2003).

Christian: for the purpose of this study included but was not be limited to the following denominations: Roman Catholic, Anglican, Methodist and other Free Churches (Pentecostal, Congregational Evangelical, Baptist, and United Reformed). These denominations were selected based on the sample used in the development of the Revised Religious Life Inventory (Hills, Francis, & Robbins, 2005).

Delusion: is a strongly held beliefs or judgments not justified by objective evidence; fixed, false, beliefs (Kapur et al., 2005).

Dopamine: is a neurochemical whose central role is to regulate "reward" and reinforcement" behavior in the brain (Kapur et al., 2005).

Extrinsic Religious Orientation: these individuals use religion in the context of providing needs such as: security and solace; sociability and distraction; status and self-justification (Hills, Francis, & Robbins, 2005)

Hallucination: refers to subjective perceptions of an external event or object that does not correspond to sensory input; aberrant perceptions (Taber & Hurley, 2007).

Intrinsic Religious Life Orientation: these individuals are seemingly more internally invested in religion and in a sense embraces and "lives" his/her religion (Hills et al., 2005)

Religion: refers to a particular system of faith and worship (Ng, 2007).

Religiosity: describes the state of being religious or being excessively religious (Ng, 2007).

Psychosis: short-term (psychotic experiences) and/or long-term experiences of positive symptoms of schizophrenia such as delusions and hallucinations; it is operationally defined as a neuropathological disorder involving aberrant reception and/or processing (Ng, 2007).

Salience: Assigning importance to neurological stimuli (usually caused by neurochemicals such as dopamine) (Kapur, 2003).

Quest Religious Life Orientation: these individuals measure the intellectual rather than the doctrinal dimension of religion, entertaining questions and doubts as a means of religious pursuit (Hills et al., 2005).

Schizotypal Cognitions: defines schizotypal traits as personality traits of experiencing 'psychotic' symptoms; aspects of personality that are relevant to the predisposition toward psychotic disorder, namely schizophrenia (Johns & Vans, 2001).

Significance of Study

According to Mohr (2004), "religion is not only important for people with schizophrenia, but it is also relevant to psychiatry; considering spirituality and religion in the treatment of people suffering from schizophrenia may help to reduce pathology, enhance coping and foster recover" (p.374). The importance of this study was to challenge negative social stigmas associated with being diagnosed with schizophrenia, while also serving as an advocate for the cultural relevance of the use of religion and spirituality as a coping mechanism for these individuals. Furthermore, I would also like the information from this study to be modified in a way that it could be used as a helpful tool for individuals with schizophrenia to help them conceptualize their religious/spiritual experiences within the context of their diagnosis. In other words, the results of this study will allow individuals with schizophrenia the ability to answer the question, "How does my religious beliefs/practices compare to other Christian individuals who do not have schizophrenia." Since some of the positive symptoms of schizophrenia (e.g., hearing voices) can also be culturally attributed to one's faith or religious beliefs, this study intended to differentiate between religious experiences that are culturally acceptable and those experiences that are a manifestation of the schizophrenia diagnosis. Additionally, this research may also be used as an information bridge that connects both religious leaders and mental health professionals so that they are able to work in tandem to facilitate the unique needs of individuals with schizophrenia with a Christian religious faith. Moreover, ultimately this study informed the integration of treatment efforts that

effectively incorporates mental health treatments and tools from the Christian religion to create a holistic treatment plan that is suitable for this group.

Assumptions and Limitations

It was assumed that the participants within both groups of the study would give honest responses, to the best of their abilities, to the two instruments that were used to conduct the study. In this study, precautions were in place to assure participants who have a diagnosis of schizophrenia were not actively psychotic. To minimize this risk, the consent form asked the participant to confirm that they are currently undergoing psychotherapy services and adhering to prescribed medication management (Appendices D & G). Therefore, it is assumed that the research partners who presents invitational materials to participants on behalf of the researcher confirmed that the participants met the inclusion criteria previously mentioned, and that participants were not actively psychotic during the administration of research assessments. Also it was assumed that individuals without a diagnosis of schizophrenia who completed the RISC assessment would do so honestly, without responding in a way that reflects positive impression management.

Limitations often inherent in research studies, are often a result of the researcher having to rely on volunteer or self-selected subjects as his or her sample base. Therefore, the sample may not be representative of the population of interest, which prevents the researcher from generalizing his or her findings, limiting the scope of his or her findings (Creswell, 2014). However, generalizability of this research approach in measuring the schizotypal cognitions and religious beliefs of individuals with and without a diagnosis of

schizophrenia is plausible in any population meeting the research criteria. The assumption of this limitation within this study was that individuals with a diagnosis of schizophrenia met the diagnostic criteria of schizophrenia as determined by the most recent version of the DSM-V. If the diagnostic criteria of the DSM are the standard criteria of symptoms in individuals with schizophrenia, then the results of this study should be generalizable.

A limitation inherent in a correlation study is the ability to predict covariation between variables (Frankfort-Nachmias and Nachmias, 2008). In this study, although the independent variable of schizotypal cognitions and the dependent variable of religious beliefs can be operatively compared between the schizophrenic and non-schizophrenic group, it cannot be assumed at what variation of the variable the covariance exists. So in this study, a regression analysis was also conducted to also explore the impact and interaction of the moderating variables of the independent and dependent variables. The moderating variables being low to extreme cognitions of the independent variable; and religious orientation for the dependent variable. However, even with finding a correlation between variables, causation cannot ultimately be assumed, which is another limitation inherent in a correlational study. Perhaps the study could have been enhanced with an additional qualitative component, in which participants are interviewed and probed for possible causation based on common themes in the narratives of both groups. However, due to possible ethical limitations, a mixed methods approach was not appropriate for this study. Another possible limitation involved procuring a sample size that was

representative of the schizophrenia population. To offset this limitation, several sites were used to recruit participants.

Scope and Delimitations

The scope of this study is established by the fact that although schizotypal cognitions has its roots in psychoticism, there have been studies conducted that establish a psychometric correlation between psychoticism and religiosity; however, no clear evidence has been found that establishes a correlation between schizotypal cognitions and religiosity. This study follows research that suggests that schizotypal cognitions and psychotic experiences are inherent in individuals with schizophrenia, and are also ultimately inherent in individuals who are religious. A delimitation of this established fact related to this study is that although schizotypal cognitions are a component of psychoticism, both factors are dissimilar enough that they both have not been found to have the same correlation to religiosity. By examining the schizotypal cognitions, which is a component of psychoticism, this study twofold examined the propensity for schizotypal cognitions in non-schizophrenic individuals who are religious, as well as examine how the propensity toward having schizotypal cognitions based on a religious orientation affects an individual with schizophrenia as compared to their non-schizophrenic counterparts. Since research has already established a correlation between psychoticism and religiosity, and research has also established schizotypal cognitions as a component of psychoticism; this study intended to establish a correlation between schizotypal cognitions and religiosity.

Summary

Polemics within literature have established seemingly conflicting evidence as to whether religious beliefs/practices or helpful or harmful to individuals with psychosis. Although psychometric evidence has been established to show a correlation between psychoticism and religious, there has been no clear evidence establishing a correlation between schizotypal cognitions and religion. Since schizotypal cognitions can be measured in both the general population, as well as in individuals with psychosis, this study sought to find a psychometric correlation between the two factors.

In Chapter 2, I will review pertinent research establishing the history of schizophrenia and religion, as well as a review of the literature pertaining to the subject. In Chapter 3, I will present the research methods used during the implementation of this study, as well as the research methods established by similar studies; which will include: research design and approach, setting and sample, instrumentation, and data collection procedures.

Chapter 2: Literature Review

Introduction

Polemics within the literature surrounding religiosity and schizophrenia address views that express a positive and negative relationship of how the use of religion impacts individuals diagnosed with schizophrenia. Literature regarding how the practice of religion affects individuals with schizophrenia suggested that the practice of religion exacerbates delusional content in individuals with schizophrenia (Mohr et al., 2010) and can reduce symptoms when used as a coping method (Mohr & Huguelet, 2004). These conflicting views are also adapted by professionals in the fields of psychology and psychiatry for reasons that may include: (a) an underrepresentation of religiously inclined and or religiously competent individuals in the mental health field; and (b) a tendency for individuals in the mental health field to pathologize the tenants of religious and spiritual practices (Mohr & Huguelet, 2004). Perhaps pathologizing spiritual and religious practices is related to the history of psychology. The practice of psychology, as it relates to providing relief for individuals in psychological distress, has its roots in religion, as psychological relief was often provided by individuals of religious capacities such as shamans and spiritualists (Benjamin, 2005). However, as psychology began to evolve, first through the field of psychiatry and then through the development of clinical psychology, the field of psychology has been intentional about developing into a respectable science, which leaves little room for abstract concepts such as religious practices and spirituality (Benjamin, 2005).

In this study, I addressed the importance of competence in the areas of religion and spirituality, particularly in the treatment of individuals with schizophrenia as a viable tool for reducing psychological distress and symptoms in these individuals.

In this literature review, I will first present the theoretical basis for this study which includes: the theory of attribution, based on a cognitive model for religious delusions and aberrant-salience theory. Next, I will briefly address the history of attitudes toward religious practice, its association with schizotypal cognitions, and its effect on individuals with schizophrenia. Then I will address studies related to the independent and dependent variables: schizotypal cognitions and religious beliefs/practices. Lastly, I will address the strengths and weaknesses of previous studies in which scholars have addressed the correlation between schizotypal cognitions and religious beliefs/practices and identify gaps in the research.

Description of the Literature Search

I conducted my search for literature primarily through the Walden University online library Thoreau Multi-Database Search, which rendered articles from several databases such as PsycINFO, Science Direct, and Academic Search Complete. I focused on peer-reviewed journal articles within the past 10-15 years. In addition to the 50 articles that addressed various topics related to the topic of schizophrenia, I also reviewed relevant articles listed within each researcher's reference list. Some articles were included in the text that were directly relevant to my study; however, some articles were merely for reference. The total number of articles, including three dissertations and two seminal studies, totaled 100 articles. Key search terms included: *schizophrenia; religion;*

religiosity; spirituality; delusions; hallucinations; social supports; mental health stigmas; dopamine hypothesis; attribution theory; aberrant salience hypothesis; schizotypal cognitions; religious orientation; religious life inventory; Rust Inventory of Schizotypal Cognitions; demon possession, mesmerism, shamanism, exorcism and combinations thereof.

Theoretical Framework

Attribution Theory and Aberrant Salience Hypothesis

The theories that grounded this research were the theory of aberrant-salience and the attribution theory, based on a cognitive model for religious delusions. Aberrant-salience is a theory that grounds the biological basis of the psychotic experiences of delusions and hallucinations experienced by individuals with schizophrenia. The attribution theory, based on a cognitive model for religious delusions, addresses the outcomes or expression of the biological predisposition for delusions and hallucinations. Aberrant-salience theory addresses the *why* and the attribution theory addresses the *what* in regard to the psychotic experiences of these individuals. These theories are related to how individuals with a religious predisposition attribute the origin or cause of psychotic stimuli to religious etiology. Individuals with schizophrenia have a predisposition to misattribute both normal and psychotic stimuli as external stimuli. Both theories suggest that an individual who is both religious and has a diagnosis of schizophrenia will most likely have an external attribution style and will likely attribute stimuli to an external religious entity. Important to both the attribution theory and aberrant salience theory are the positive symptoms of schizophrenia, which are hallucinations and delusions.

Hallucinations refer to subjective perceptions of an external event or object that does not correspond to sensory input. Delusions are strongly held beliefs or judgments not justified by objective evidence (Taber & Hurley, 2007). The theories propose explanations for the genesis of both phenomena in individuals with schizophrenia.

Attribution Theory

The primary theoretical framework used in the current study was the attribution theory, which Mohr and Huguelet (2004) stated was a cognitive model for religious delusions. According to the attributional style of religious individuals differs from that of nonreligious people. Religion can be differentiated from religiosity, as religion refers to a particular system of faith and worship; religiosity describes the state of being religious or being excessively religious (Ng, 2007). Siddle, Haddock, Tarrier, and Faragher (2002) clarified that religious beliefs are not necessarily pathological; however, religious people do express an external attributional style. According to the attribution theory, the external attributional style of religious people may lead them to ascribe psychotic experiences to external causes. Mohr and Huguelet (2004) further suggested that individuals within religious backgrounds tend to attribute their psychotic experiences to that of a spiritual or religious etiology. They experience the positive symptoms of *inferential thinking* or delusions, and attribute them to the voice of God or demonic forces.

Aberrant Salience Hypothesis

The aberrant-salience theory suggests that increased salience results in psychosis by which neutral experiences are mistakenly endowed with personal meaning (Kapur, 2003). The theory of salience suggests that dopamine is responsible for mediating the

way in which an individual gives external context to internal stimulus. Furthermore, it is also theorized within the aberrant-salience theory, that delusions and hallucinations are exacerbated in individuals with schizophrenia due to increased levels of dopamine (Kapur, 2003). Both the attribution and aberrant-salience theories create a framework that suggests that individuals with hypersensitivity to dopamine activity are more susceptible to misattributing psychotic stimuli to spiritual and religious experience.

Both theories also highlight the propensity for schizotypal cognitions in both the schizophrenic population as well as in the normal population. The attribution theory suggests that a religious disposition renders an individual vulnerable to misattributions similarly found in individuals with schizophrenia. These misattributions may be found in schizotypal symptomology and may include forms of delusion, derealization and depersonalization, ideas of reference, intrusive and extrusive thought, hallucination, and persecution. As suggested by both theories, individuals with a religious background present a risk of schizotypal cognitions, likewise, having a diagnosis of schizophrenia inherently present a risk of schizotypal cognitions. Based on both the attribution theory and the aberrant-salience theory, individuals who have a diagnosis of schizophrenia and are religious are twice as vulnerable to misattributing psychotic stimuli as religious experiences. This misattribution in often associated with individuals who experience religiosity.

Aberrant Salience Hypothesis: Influence for This Study

Kapur, Mizrahi, and Li (2005) examined the dopamine theory by first acknowledging its roots during the introduction of the antipsychotic drug

cholorpromazine in the 1950s. According to Kapur et al. (2005), because the antipsychotic (and others like it) acted on the dopamine system by blocking the dopamine D2 receptor, excess dopamine release is the likely cause of psychosis. However, it was not until 1996 that previous assumptions of dopamine dysregulation were physiologically sustained by evidence of in vivo imaging studies that found evidence of dopamine dysregulation in acute psychosis (Heinz & Schlagenhauf, 2010).

Another landmark study was published by AbiDargham (2000), which addressed the question of whether dopamine is released in higher amounts in individuals with schizophrenia. Within the study, dopamine was depleted by applying the drug alphamethyl-paratyrosine, reducing extracellular dopamine levels. As a result, the researcher reported that there was a larger increase (higher level) in dopamine D2 receptor radioligand binding (of unoccupied D2 receptors) in schizophrenia patients compared to healthy controls (Heinz & Schlagenhauf, 2010). These findings suggested an increased presence of dopamine in individuals with schizophrenia. Although there is neurological and pharmacological evidence of how dopamine dysregulation affects the brain, it is unclear how dopamine dysregulation affects emotions and thoughts of an individual who is undergoing psychosis (Kapur et al., 2005).

Research addressing the effects of dopamine on an individual's mind has reached near universal agreement that the central role of dopamine is in regulating *reward* and *reinforcement* behavior (Kapur et al., 2005). However, determining exactly how dopamine contributes to reward and reinforcement behavior remains a subject of contention among theorists (Kapur et al., 2005). So far, the general consensus of how the

dopamine system normally works is that it regulates context-driven reward-associated stimuli and the goal-directed behavior associated with obtaining and maintaining those rewards. An individual develops reward seeking behaviors based on associations of rewards in their environment. An individual's reward-seeking behavior is then regulated based on unsuspected new rewarding experiencing or when an expected rewarding experience is no longer rewarding. Dopamine is released whenever an incoming reward exceeds the predicted reward, therefore the positive difference between received and predicted reward is reflected in dopamine firing (Heinz & Schlagenhauf, 2010). Likewise, dopamine firing is expected to be reduced whenever the outcome of the reward is less than expected (Heinz & Schlagenhauf, 2010). These experiences become imprinted in a healthy individual's brain and dopamine is released in normal amounts based on the reinforcements of the individual's reward-seeking experiences (Kapur et al., 2005). There are also instances when a familiar reward-rendering cue has an unexpected element such as time of appearance that can result in a short phasic increase in dopamine due to the unexpected factor of time (Kapur et al., 2005). However, if all factors are as expected and conditioned to the reward seeker, the expected stimuli will no longer result in dopamine release and the expected reward becomes zero (Kapur et al., 2005).

In normal individuals the dopamine system acts as a mediator of context-driven reward-response activity in their environment; however, in individuals with psychosis, the dopamine system not only loses its ability to release context-driven dopamine, it creates its own assignment of salience (importance) to new experiences/stimuli (novelty) void of context (aberrant) regulation (Kapur, 2003). It is this increase in dopamine in

individuals with psychosis that results in a prediction error and assigns reward-seeking salience to otherwise irrelevant stimuli (Heinz & Schlagenhauf, 2010). These aberrant novelties create the beginnings of the hallmarks of established psychosis: delusions (fixed, false beliefs) and hallucinations (aberrant perceptions; Kapur et al., 2005). Kapur et al. (2005) described a *prodromal period*, a period between when the first symptoms of psychosis appear and the full expression of psychosis. During the beginning stages of context-independent (aberrant) firing of dopamine neurons, Kapur et al. (2005) described individual's experience of novelty and salience that are captured in the following *prodromal period* patients' accounts: "I developed a greater awareness of….my senses were sharpened. I became fascinated by the little insignificant things around me." "Sights and sounds possessed a keenness that I had never experienced before." "I noticed things I had never noticed before" (Kapur et al., 2005). According to Kapur et al. (2005) those initial perplexing novelty and salience experiences eventually crystalize into full-blown delusions.

Once these perplexing novelty and salience experiences become crystalized in the individual's mind, the individual begins to assign meaning to the stimuli/experiences based on cultural themes that are familiar to them and eventually these experiences will begin to affect the individual's behavior (Kapur et al., 2005). Hence the formation of aberrant religious delusions in individuals with schizophrenia who identify as Christian. According to the model presented by Kapur et al. (2005), hallucinations are similarly developed based on the aberrant assignment of salience to internal representations of precepts, language and memories. In the instance of an individual with schizophrenia

who perceives aberrant stimuli in the context of Christian precepts, the individual may be more likely to assign internal stimuli an external context, usually in the form of religious entities such as angels and demons.

Attribution Theory: Influence for this study

The attribution theory has its roots within the field of social psychology. The term "attribution theory" refers to the study of perceived causation, and refers to the inferences that individuals make about the cause of behaviors or events (Kelley & Michela, 1980). The original concept of attribution is that people interpret behavior in terms of its causes, and those interpretations play a significant role in that individual's response to that behavior (Kelley & Michela, 1980). The attribution theory follows a general model which includes the antecedent of what causes attributions such as an individual's beliefs, motivations, and previous information ascertained before encountering a certain behavior or event. An individual's beliefs, motivations and previous information about an encounter will then lead him/her to attribute a cause to that encounter. This then leads to the consequences of that attribution; which results in behavior, affect, and expectancy. For the purpose of this study the attribution theory was considered in the context of a cognitive model for the development of religious delusions.

Attribution Theory and Religion

Mohr and Huguelet (2004) presented a cognitive model for the development of religious delusions, which is based on the attribution theory. This model asserts that religious people demonstrate an attributional style typically different from nonreligious people. Mohr and Huguelet (2004) went on to identify this attributional style as external

attribution, and asserts that an external attribution style leads religious people to ascribe psychotic experiences to external causes. Mohr and Huguelet (2004) suggested that the motivation behind religious people's external attribution style is to help them deal with negative life events. It is important then to note that Mohr and Huguelet (2004) drew a distinction between religious delusions and religious beliefs as assessed in patients. For instance, in an outpatient setting, based on the following three criteria: 1) the patient's self-description of the experience is recognized as a form of delusion; 2) other recognizable symptoms of mental illness are present such as hallucinations, mood or thought disorders, etc.; and 3) the patient's response to the religious experience is consistent with a mental disorder, rather than as a personally enriching life experience.

However, even though there exists a discriminating basis of differentiating religious beliefs from religious delusions, many researchers are convinced that religious beliefs and delusion lie on a continuum, and that religious beliefs, even in the normal population, leaves this group vulnerable to psychosis or at the very least psychotic experiences. Siddle et al. (2002) surmised that religious beliefs are common and not pathological; however, a proportion of people will experience psychotic experiences to which they will attribute to external causes such as God and or demons. Religious delusions are held with more rigidity and conviction than any other delusions, particularly in individuals with a disposition of a mental illness. Consequently, religious delusions have been shown to be more prevalent in cultures with a more powerful religious presence. As shown in studies by Tateyama et al. (1993) and Kiev (1963),

religious delusions in schizophrenia vary from 7% in Japanese patients to up to 80% in Afro-Caribbean populations.

Despite the prevalence of religious delusions among cultures who place more emphasis on religious beliefs, religious delusions do not account for the prevalence of psychotic experiences in individuals with schizophrenia as seen by the presence of delusion and hallucinations in schizophrenic individuals from less religious cultures. Although Morrison (2001) referred semantically to the concept of misattribution as misinterpretation, likewise it suggests that the nature of the individual's misattribution of psychotic stimuli is determined by a combination of their experience, beliefs, and knowledge. Morrison (2001) continued by giving examples of various forms of misinterpretations such as: An individual interpreting intrusive thoughts as alien thought insertion; misinterpreting intrusive impulses as an alien controlling one's body; interpreting intrusive thoughts as evidence that a neighbor is trying to kill the individual; interpreting information mentioned on a television program as evidence that the individual is speaking directly to him/her; interpreting a visit from a home inspector as evidence of a government conspiracy against him/her. The experience or beliefs of an individual can affect how they interpret psychotic intrusions, such as in the example of attributing a visit from a home inspector as a government conspiracy, such individuals may have past experiences of racism or perhaps hold general beliefs about the untrustworthiness of government officials or people in general (Morrison, 2001).

In a study conducted by Siddle et al. (2002), Siddle investigated the presence of religious delusions in patients with schizophrenia, and compared their characteristics to

patients with schizophrenia with delusions other than religious delusions. The Positive and Negative Syndrome Scale for Schizophrenia (PANSS) scale was used to investigate the extent and severity of psychotic symptoms, and the Global Assessment of Function(GAF) was used to investigate the patient's current level of functioning. It was first assessed that of the one hundred and ninety-three subjects examined, 24% had religious delusions. Within the 24% of individuals with religious delusion, the researchers observed the following characteristics: they scored higher for severity of psychotic symptoms; they had lower functioning (as measured by the GAF); and they were prescribed more medication than their counterparts who did not have religious content related delusions. This led the researchers to conclude that religious delusions are commonly present in individuals with schizophrenia and that these individuals seem to have lower functioning. Research by Siddle et al. (2002) has shown that religious delusions are held with a deeper conviction than other types of delusions, and that this belief conviction affects the individual's response to command hallucinations. In this study, it is also interesting to note that although their study showed that being religious was significantly associated with religious delusion, there were nine patients with religious delusions that did not identify themselves as being religious. Interestingly, of the patients who did not have religious delusions, nine of them identified themselves as being religious. It would have been interesting, however, if the researchers distinguished the individuals' self-report of religious status as either intrinsic or extrinsic as measured by a tool such as Batson and Ventis Religious Life Inventory (Joseph, Smith, & Diduca, 2002). However, the researchers only used a self-report from patients identifying

themselves as religious. Nevertheless, arguably the most fascinating findings from the research examining the connection between religious beliefs and religious delusions was found in the nine patients with religious delusions who did not self-identify as religious.

Psychotic Experiences in the Normal Population

Morrison (2001) further suggested that psychotic symptoms such as intrusive thoughts occur in non-psychotic individuals, just as it occurs in psychotic individuals. Modinos et al., (2009) also maintained that psychotic experiences are not encountered exclusively as a part of a fully developed psychotic disorder; it can also be found in schizotypal personality disorder (which is considered a part of the schizophrenia spectrum disorders), as well as can be psychometrically identified in the general population. However, it is the external and sometimes bizarre external attribution that distinguishes the two instances. For instance, Morrison (2001) highlighted some authors who suggests links such as sexual abuse, bereavement, sleep deprivation, and solitary confinement as conditions inducing auditory hallucinations in non-psychotic individuals. According to Slade and Bentall (1988) surveys of hallucinatory experiences suggest that 10 to 25% of the general population have experienced auditory hallucinations at least once in their lifetimes.

Additionally, Morrison (2001) highlighted the tendency of individuals with Schizophrenia to respond maladaptively to their auditory hallucinations in ways that subsequently perpetuate their hallucinations. In comparing the appraisal of auditory hallucinations in individuals with psychosis as compared to occurrences in non-psychotic individuals as previously mentioned, the initial interpretation of the intrusion will

determine the subsequent cognitive and behavioral responses. For instance, in the example of auditory hallucinations caused by sleep deprivation, a non-psychotic individual may interpret the hallucination as a lack of sleep, and attempt to resolve the matter by getting more sleep, giving the occurrence no further thought (Morrison, 2001). However, if the same person had a predisposition for psychosis, interpreted the occurrence externally as a sign that his/her neighbor was attempting to harm them, they may prevent disconfirmation of the misinterpretation by indoctrinating it with hypervigilance or safety behaviors to prevent the perceived outcome. The individual's maladaptive attempts to prevent the psychotic intrusion, contributes to further maintenance of further intrusions (Morrison, 2001).

The Evolution and Biological Basis of Schizophrenia

This section will first address the evolutionary and biological basis for the connection between religion and psychoticism. Then it will address a synopsis of studies that have found correlations between religion and psychoticism, as well as religion and schizotypal beliefs. This section will also consider the gaps in research in the aforementioned studies.

The Evolution of Schizophrenia

The evolutionary theories related to Schizophrenia can be referenced to the etiology of evolutionary thinking: Charles Darwin's theory of natural selection (Polimeni & Reiss, 2003). Charles Darwin's theory gave an explanation of how species change through time, explaining how select trait variations become "selected" and ultimately spread through future generations. If these "selected" traits gain preferential treatment

they will ultimately survive throughout generations, while other traits will be adaptively extinguished. The survival of these "selected" traits is best known by the phrase "survival of the fittest," coined by Darwin. Schizophrenia undoubtedly has a genetic basis which qualifies it as having an evolutionary basis (Polimeni & Reiss, 2002). McClenon (2012) also suggested phenotypes related to schizophrenia that can be traced back to historical shamanism. It is estimated that first-degree relatives of individuals with Schizophrenia have a 3-7% risk for Schizophrenia (Polimeni & Reiss, 2002). Within prominent research on the genetic prevalence of schizophrenia is the "schizophrenia paradox", which presents the discrepancy that although research shows reduced reproduction (fecundity) in individuals with Schizophrenia, the consistent 1% present prevalence rate throughout history is considered a high prevalence and exceeds common mutation rates (Polimeni & Reiss, 2002). McClenon (2012) cited group selection evolutionary theories that suggest that the survival of schizophrenia in the human species is related to the advantages it provided to groups through shamanism and creativity, and was enough to overcome the disadvantages of the disorder.

Also essential to the evolution of schizophrenia is the fact that the correlation between religion, psychosis, and schizotypal cognitions, can be deduced from the ancient origins of Shamanism (Polimeni & Reiss, 2002). Silverman (1967) was the first to note the similarities between the psychological functions of acute schizophrenia and the practice of Shamanism. Interestingly, he noted little difference in several 'core psychological factors'; however, he did note a significant difference in the cultural acceptance of aberrant behaviors. Ultimately, what are known as psychotic features in the

Western culture were celebrated features in ancient cultures and were therefore sustained as transferable, evolutionary traits. Specifically, shamans were selected based on their abilities to have involuntary visions; having received signs from spirits; having induced trance states through practices such as fasting and water deprivation, as well as sleep and social deprivation (Polimeni & Reiss, 2002). Their trance states involved soul flights, journeys to the underworld, and/or transformation into animals (Polimeni & Reiss, 2002). Essentially, Shamans were selected and ultimately celebrated based on their proneness to delusions and hallucinations, thus, giving credence to the evolutionary adaptive benefits of what is currently referred to as the positive symptoms of schizophrenia. McClenon (2012) also suggests similarities between shamanism and schizophrenia, as they both involve visionary experience, delusion, and conviction. Noted differences between Shamanism and modern psychosis are the higher prevalence of visual hallucinations in Shamanism, as well as the esteemed social stigmas associated with the evidence of delusions and hallucinations shown in Shamanism as compared to schizophrenia. Ultimately, Shamanism shows comparative evidence of the connection between religion and psychosis and dates back at least 20,000 years ago. The history of Shamanism also provides evidence that religious delusions are a common feature of Schizophrenia (Polimeni & Reiss, 2002).

Demon Possession and Schizophrenia

Important to the topic of the evolution of schizophrenia is the antiquitous, religious-based experience of demon possession and its association with psychosis. In the study conducted by Siddle et al. (2002), previously discussed, it was found that within the

sample of individuals with schizophrenia who also manifested the presence of religious delusions both either, believed themselves to be a grandiose religious figure such as God, Jesus or an angel; or garnered a belief of being possessed by the devil or demons. Both beliefs were common among these individuals. It is interesting then, to explore the etiology of this belief in the history of the treatment of individuals with psychosis.

Neugenbauer (1979) established that the Middle Ages and the Renaissance were dominated by demonological theories of mental illness. However, not all individuals during the Middle Ages who were considered to have a mental illness were considered demon-possessed, as Chiu (2000) established that there were individuals who performed differential diagnosis on such individuals, such as medical theologians, lawyers, or physicians. Priests and Shamans were the original overseers of individuals with demon possession (Chiu, 2000). Demon possession eventually emerged into Western Europe as an accompaniment of Christianity (Spanos & Gottlieb, 1979). Consequently, the Church maintained its role as the center of religion and knowledge and monopolized medical ideas until around the 15th century when medicine and priesthood became separate entities. In fact, Hayward (2004) cites a position that portrayals of demon possession and its subsequent cure, were seen as the Church's professionalizing strategy to establish their pastoral expertise.

After the established role of exorcists, a group of healers known as Mesmerists operated under the belief that a "subtle fluid" permeated the whole universe, including the human body (Spanos & Gottlieb, 1979). They believed that they could influence this fluid in their subjects through magnetizing, in an effort to create or restore harmony in the

individual’s fluid (Spanos & Gottlieb, 1979). The process of magnetizing involved the Mesmerist transferring his magnetic fluid to the patient through “passes”, which consisted of stroking motions close to but not touching the client’s body (Spanos & Gottlieb, 1979). Mesmerists would also transfer their magnetized energy to inanimate objects such as a magnetized handkerchief that the patient would hold over a diseased area of his/her body (Spanos & Gottlieb, 1979). Convulsions in the patients of Mesmerists could occur before interactions with the Mesmerist; however, they especially occurred in the presence of the Mesmerist (Spanos & Gottlieb, 1979). According to Spanos and Gottlieb (1979), convulsions could be initiated by the wave of the Mesmerist’s hand, his glance, or even by contact with inanimate objects that patients believed were magnetized (Spanos & Gottlieb, 1979). Interestingly, Mesmerists believed that convulsions were therapeutic in nature and eventually led to a crisis state that eventually released the individual from suffering and led to the patient’s cure (Spanos & Gottlieb, 1979). McNally (1999) described patient’s response to mesmerism as a dramatic catharsis that which was a signal that balance had been restored. Essentially it was believed that the convulsions were a manifestation of the healing process and the patient’s “release” of the reported ailment.

Other distinctions of demon-possession and exorcisms were also found in Mesmerists and their patients. Similar to demon-possessed individuals, clients of Mesmerists were distinguished by behaviors such as convulsions, amnesia, demonstrations of increased intelligence and clairvoyance, unusual feats (e.g. heightened sensory abilities), all behaviors which were not considered to be of their own volition

(Spanos & Gottlieb, 1979). In order for Mesmerists to have success in their efforts to magnetize, they needed to possess faith and confidence in their abilities, as well as lead morally pure lives, or their treatment would fail (Spanos & Gottlieb, 1979). Not only would their treatment fail, they also ran the risk of the illnesses and conditions of their patients being transferred to them (Spanos & Gottlieb, 1979). During the 18th century when behaviors often found in Mesmerist patients such as convulsions and sensory dysfunctions occurred in females, the symptoms were categorized as hysteria (Spanos & Gottlieb, 1979). The authors contend that the role of the demonically possessed paralleled the role of the magnetized patients, and the role of the Mesmerists paralleled the role of the Exorcist. In the 19th century Mesmerism was identified, and in some ways reduced by the Catholic church clergy and laymen, as a form of demon possession (Spanos & Gottlieb, 1979). Hayward (2004) cited that early Biblical Psychologists argued that mesmerism accessed the power of demons by using the charismatic motions of mesmerism to establish rapport and guide the patient into a "mesmerized" or hypnotized vulnerable state. Once the individual's will and intelligence was surrendered possession took place. Then by the mid- 19th century both symptoms of magnetized subjects and demon possessed were all considered by the medical community as "hysteria" to explain virtually any instance of unusual or dramatic behavior (Spanos & Gottlieb, 1979). It should also be noted that witchcraft was another demon-possession theory held by modern Europe, where there were many witchcraft trials due to demon-possession (Chiu, 2000). The role of the witch paralleled the role of the exorcist and the Mesmerists, in that

the witch's subject would often respond in convulsions, in a similar manner as subjects of Mesmerists and Exorcists.

While there is literature on the history of schizophrenia and on the history of demon-possession, literature on both topics do not offer a clear connection between schizophrenia and demon-possession in history. In fact, according to research on the history of both schizophrenia and demon possession, it seems that schizophrenia is most closely associated with the authority figures in charge of relieving suffering individuals from demon-possession, rather than being associated with the demon-possessed subject. For instance, in Polimeni and Reiss's (2003) account of the evolution of schizophrenia, they associate positive symptoms of schizophrenia such as delusions of grandeur and hallucinations with Shamans; and, authors such as Chiu (2000) associate figures such as Shamans, as the historical authority figures over individuals with overt demon-possession related behaviors, along with Mesmerists and Priests also being authority figures. However, the historical account of individuals with schizophrenia being the leaders and authorities over individuals who are seemingly deemed weak and helpless, has an eerie juxtaposition with current perspectives of individuals with schizophrenia. The current perspective of individuals with schizophrenia most likely resembles the demoniac (in terms of being the individual in need of intervention), rather than its authority figure. Similarly, as previously mentioned, in the Siddle et al. (2002) study on individuals with delusions, some individuals with religious delusions ascribe themselves as being an authority figure such as God, Jesus or an Angel; whereas, some individuals ascribe themselves as being possessed by demons. This dual role dynamic is also seen in the

literature of the history of both schizophrenia and demon possession. This is a topic that should be further explored and examined, particularly addressing the factors involved with the juxtaposition of roles in individuals with seemingly similar religious delusions. Particularly, why some individuals with schizophrenia attribute themselves as religious leaders/authority figures and/or religious entities; while others as being possessed by religious entities.

Pfeifer (1999) offered four major interpretation of demon possession throughout literature: (a) the cultural phenomena in which possession states are seen as culturally accepted phenomena, and is widely defined by culture in its interpretation of the invading spirit, for example. deceased ancestor, a god, Satan, or an animal spirit; (b) witchcraft explanations in which behaviors associated with demon possession are believed to be related to magical-religious beliefs such as magical rituals or witchcraft; (c) hysteria and dissociation explanations which were prevalent during a time when overt expression of demon-possession behaviors as a form of psychological expression were not socially accepted; and (d) the clinical observation that most psychotic patients report the delusion of being possessed.

Biological Basis of Schizophrenia

In establishing a biological basis for Schizophrenia, neuroimaging is a key application of the neurological underpinnings of schizophrenia. Particularly, functional neuroimaging techniques such as single-photon emission computerized tomography (SPECT) and positron emission tomography (PET) were used in the first functional neuroimaging study of religious delusions in schizophrenia (Puri, Lekh, Nijran, Bagary,

& Richardson, 2001). Puri et al. (2001) observed a subject's brain activity while the subject was displaying active religious delusions, this was done by observing regional cerebral blood-flow (rCBF). The neuroimaging took place both while the subject was in an active psychotic state and again when the subject was in remission. Puri et al. (2001) reports that the subject, during active psychosis, indicated that the Bible was speaking to him literally. He had a messianic role, and that many Bible chapters referred to him in a literal sense. As a result of the study, Puri et al. (2001) reported that general delusions and hallucinations in patients with schizophrenia are associated with increased blood flow in the left temporal region, and underactivity in the left occipital regions. Additional studies in neuroimaging related to religious delusions have shown dysfunctional mesolimbic activities, particularly in the hippocampus and amygdala, and that stimulation in these areas can produce altered perceptions of reality, such as distorted sense of time, ego boundary (depersonalization), external reality, and familiarity (déjà vu) (Ng, 2007).

In a similar study, Spence et al. (1997) used PET to measure rCBF in subjects both with schizophrenia (having active delusions) and from the non-schizophrenic population, performing a motor task of moving a joystick. Spence et al (1997) reported that subjects with schizophrenia exhibited a relative failure of prefrontal activation while performing the task. This led to the conclusion that similar 'hypofrontality' (failure of activation of the frontal cortex) in neuroimaging studies of individuals with active delusions, is consistent with neuroimaging studies that show that positive symptoms (delusions and hallucination) of schizophrenia are seen as the consequence of a failure by 'higher' brain areas to regulate 'lower' areas. In other words, there is a neurological

disconnect in the individual's ability to cognitively process their sensory input. However, Spence et al. (1997) concluded that the defect in functional connectivity is more a product of the "state" of psychosis, rather than a "trait" of the schizophrenia diagnosis itself, due to the fact that similar deficits are not seen in these individuals when they are not actively psychotic.

Additionally, misattribution of internally generated actions to external entities are associated with impairments in the communication between frontal brain areas that initiate the thoughts and the parietal regions of the brain that monitor perceptions of time and space (Farrer & Frith, 2002). Farrer and Frith (2002) used event-related functional magnetic resonance imaging (fMRI), to conduct a study intended to identify the brain areas that are activated in the normal population both when they experience an action caused by themselves and when they experience an action caused by someone else. The subjects were asked to use a joystick to drive a circle around a T-shaped path, the subjects were made aware when the circle would be driven either by them or the experimenter. During the activity there was a clear neurological distinction in brain function between the anterior insula, which was found to be correlated with an action of self, and the inferior parietal lobe, which was found to be correlated with the action of others. However, in a similar study by Farrer and Frith (2004) in which the same task and neurological surveillance took place with individuals with schizophrenia who were experiencing positive symptoms, it was founded that the clear distinctions in the anterior insula and parietal lobes were not found in these individuals. There were no co-variations between the anterior insula and parietal lobes when tasks where distinguished

as self-caused or caused by the experimenter. Individuals with schizophrenia showed no modulation in the anterior insula when they were in control of the action being performed. Farrer and Frith (2004) concluded that the results of both studies show the neurological propensity of individuals with schizophrenia to misattribute self-actions as ‘other’-actions. This also aligns with the attribution and aberrant-salience theories that contend that individuals with schizophrenia have a biological predisposition toward eternal attribution.

Religion, Psychoticism and Schizotypal Cognitions

Schizotypal Cognitions in the Normal Population

Johns and Van (2001) defined schizotypal traits as personality traits of experiencing ‘psychotic’ symptoms, while Joseph, Smith, and Diduca (2002) defined it as aspects of personality that are relevant to the predisposition toward psychotic disorder, namely schizophrenia, as referenced by relevant research. Johns and Van (2001) identified the propensity toward finding schizotypal symptoms in the normal population, as well as with individuals with Schizotypal Personality Disorders and in individuals with Schizophrenia. However, as previously mentioned, the phenomenon of experiencing ‘psychotic’ experiences such as auditory hallucinations are not relegated to individuals with a precursor for psychosis, or to individuals in a psychotic state. Rather, even individuals in the normal population have reported experiences that can be operationally defined as psychotic (Modinos et al., 2010). Johns and Van (2001) confirmed the notion that schizotypal traits can be found in the normal population through psychometric inventories geared toward identifying such traits. To this end, Johns and Van (2001)

suggests that Schizotypy or Schizotypal traits represents a quantitative rather than qualitative perspective on “psychosis-proneness”. Johns and Van (2001) offered that a continuum be considered, ranging from normality at one end, through eccentricity and different combinations of schizotypal characteristics, to extreme psychosis on the end of the continuum.

Reductions in cerebral grey matter are associated with schizophrenia (Ettinger et al., 2012). Reductions in grey matter in individuals with schizophrenia are theorized to be partially related to neurodegenerative processes that began even before the onset of psychosis (Ettinger et al., 2012). It should be noted that a reduction of grey matter can also be found in individuals with psychosis-prone traits such as in individuals in the general population who have schizotypal cognitions (Ettinger et al., 2012). Modinos et al. (2010) conducted a study in which 600 subjects were recruited, representative of the normal population, to observe for schizotypal cognitions and neurological similarities between high scores of psychometrics that measure schizotypy and gray-matter volume (gmv) deficits in the brain, which is commonly associated with individuals with schizophrenia. Exclusion criteria to ensure a sample from the normal population included the following: (1) no personal history of neurological or psychotic illness; (2) no family history of neurological or psychotic illness in first-degree relatives; (3) no use of illicit substances; and (4) no changes in overall level of functioning, including academic performance over the last 6 months. The original total was reduced to a sample size of 38, of which 18 individuals scored high on the psychometric scale measuring schizotypy and 20 individuals with low scores. These two groups were then scanned with Magnetic

Resonance Imaging (MRI) to observe differences in gray-matter volume in the brain. The results showed significant global gray-matter volume differences between subjects with high compared to low psychometric scale scores, with high schizotypal subjects showing larger volume. It should be noted that studies comparing individuals with ‘at risk’ (for psychosis) mental states to healthy controls also using the MRI to measure gray-matter volume, resulted in individuals with ‘at risk’ mental states showing deficits in gray-matter volume as compared to healthy controls (Modinos et al., 2010). Deficits in gray-matter volume in individuals with schizophrenia is generally found in similar research (Modinos et al., 2010). However, Modinos et al. (2010) also cited that increases, rather than decreases in GMV has been found in other schizophrenia spectrum disorders as well as first-episode schizophrenia patients with hallucinations compared to non-hallucinators (Shin et al. 2005). These findings suggest that individuals with high scores on psychometric scales, even in the normal population, have similarities to individuals with psychosis. However, as contended by Ettinger et al. (2012) no study, as of 2012, has observed patterns of grey matter volume reductions in individuals with higher levels of schizotypy as is most commonly found in individuals with schizophrenia.

Schizotypal Cognitions and Psychoticism as Associated with Religiosity

Within research related to the nature of delusions amongst individuals in the normal population, religiosity was cited as a primary component (White, Joseph, & Neil, 1995). According to studies conducted by Francis (1993), there is evidence that higher religiosity scores are associated with lower psychoticism (White et al., 1995). These research findings are seemingly contradictive to the general associations between

psychosis and religiosity which infer that higher religiosity would seemingly be associated with higher psychoticism (Siddle et al. 2002). However, Francis (1992) contended that psychoticism and religiosity have similar functioning in individuals who are considered ‘tender-minded’. In other words, Francis (1992) believed that the characteristics of psychoticism and religiosity are so similar, they are interrelated in terms of personality. Subsequently, one may assume that higher religiosity scores are also associated with schizotypal traits since psychoticism and schizotypal cognitions are similar. However, as previously mentioned in reference to the study conducted by Modinos et. al (2010), although there are correlations between individuals with psychosis and those with schizotypal traits, a study has yet to be conducted to confirm neurological or otherwise quantitative similarities between the two distinctions (Ettinger et al., 2012). This is also relevant to the fact that psychotic experiences and schizotypal cognitions occur within the normal population. With evidence of covariance between the two distinctions, research related to how religion affects both traits should seemingly be similar.

Joseph and Diduca (2002) conducted a study to investigate the association between schizotypal traits and religious orientation, as assessed by Batson and Ventis’ Religious Life Inventory (1982). In this study, a total of 180 respondents completed a battery of measures that included: 100-item Eysenck Personality Questionnaire (EPQ) (1975) Including measures of psychoticism (p), extraversion (e), and neuroticism (n); Claridge’s Schizotypal Traits Questionnaire (STQ) (1984) comprising 24 items measuring schizotypal traits; and a 21-item Batson and Ventis Religious Life Inventory

(1982), which yields scores for External, Internal, and Quest. While this study found that psychoticism is a dimension of personality fundamental to religiosity; there was no correlation found between religiosity and schizotypal traits.

In another study investigating the association between schizotypal traits and religious orientation conducted by Maltby et al. (2000), 195 respondents (81 men and 114 women), all college students, completed Claridge's STQ (1996) and a 12-item "Age Universal" version of the Religious Orientation Scale (1967). The results of that study were that among women, a significant positive relationship occurred between an extrinsic personal orientation toward religion and specific measures of the STQ including: unusual perceptual experiences and the paranoid and suspiciousness measures of the schizotypy personality measure. These findings only demonstrate minimal support for the suggestion that religiosity is related to schizotypal personality traits, as these findings were only with the women in the study and accounted for a 7% variance. Similar partial results were found in a study conducted by White, Joseph, and Neil (1995) in which there was a weak positive correlation between religiosity and the specific schizotypal traits of magical ideation, paranoid ideation, and unusual perceptions (Joseph, Smith, & Diduca, 2002).

Summary

This chapter began with the theoretical basis for this study which included the theory of attribution, based on a cognitive model of religious delusions and the aberrant-salience theory and both theories' influences for this study. I also addressed the history of schizophrenia, by presenting the evolution and biological basis of schizophrenia as well

as the history of demon possession. An issue emerged with the juxtaposition of the historical religious views of individuals characterized as having schizophrenia being self-confident leaders and healers, to a modern characterization of individuals in need of confident leaders and healers. Next I addressed schizotypal cognitions and religious delusions as they occur both in individuals with schizophrenia as well as in the normal population.

Lastly, I reviewed two major studies that examined the association of schizotypal traits and religious orientation, which were conducted by Joseph and Diduca (2002) as well as Maltby et al. (2000). I concluded that in both studies, the findings did not show clear evidence in support of the correlation between religiosity and schizotypal cognitions. Neither study approached their research with an emphasis on a comparative study of individuals who identify as Christians both with and without a schizophrenia diagnosis, in an effort to identify factors associated with both religious orientation and schizotypal traits. The purpose of this study was to expand the knowledge on research examining the correlation between religious orientation and schizotypal cognitions.

The next chapter contains details about this study's research design and methodology, selected to address the gap in research by contributing knowledge to the correlation between religious orientation and schizotypal traits.

Chapter 3: Research Method

Introduction

The purpose of this study was to normalize the religious experience of Christian individuals with schizophrenia who may experience religious delusions, by conceptualizing those experiences in the context of other Christians' experiences. The current study compared the schizotypal cognitions of Christian individuals with schizophrenia to their non- schizophrenic counterparts to investigate the potential for an individual's religious beliefs to affect schizotypal cognitions and vice versa. In comparing the potential presence of schizotypal cognitions in normal individuals with similar religious beliefs/practices to those of individuals with schizophrenia, a baseline was established for a Christian individual's propensity for schizotypal cognitions with or without the presences of psychosis. This study provided impressions of how religious beliefs and practices affect schizotypal cognitions in individuals with schizophrenia. Results from this study may inform both individual treatment and integration of religious beliefs and practices in improving overall well-being for individuals with schizophrenia. This research may be used as a tool for both clergy and mental health professionals to better serve individuals with schizophrenia by incorporating religion in a positive, normative, and symptom-reducing way.

Research Design and Rationale

I conducted a quantitative study employing a cross-sectional research design. Frankfort-Nachmias and Nachmias (2008) provided a justification for the use of this design as most researchers employing the cross-sectional research design method are

concerned with assessing causation between variables and assessing a pattern within the relationship of the prescribed variables. In this study the independent variable was the presence of a schizophrenia diagnosis and the dependent variable was religious beliefs/practices. The moderating variables of the independent variable were the presence of low to extreme schizotypal cognitions, and the moderating variables of the dependent variable were the religious orientations of the individuals in both groups, designated as either extrinsic, intrinsic, or quest.

The research design for the current study was formulated in a way that it progressively identified the correlation of variables from the general independent and dependent variables, then it identified the correlation between the moderating variables on the independent and dependent variables, and lastly it identified correlations between the moderating variables themselves. I used the Statistical Package for the Social Sciences (SPSS) descriptive analysis via measures of central tendency and variability to understand and describe the study population. Additionally, a one-way analysis of variance (ANOVA) was implemented to determine if there is a statistically significant difference in schizotypal cognitions between Christian individuals with and without a diagnosis of schizophrenia. Because there was a significant difference between the schizotypal cognitions of individuals with and without a schizophrenia diagnosis, a regression analysis was conducted to further examine the differential between the categorical range of schizotypal cognitions of both groups. Additionally, an ANOVA was performed to determine if there was a statistically significant relationship between extrinsic/intrinsic religious orientation and schizotypal cognitions among Christian

individuals with and without a diagnosis of schizophrenia. An ANOVA was completed to explore the impact and interaction of the moderating variables on the dependent variable and independent variable. Moderating variables within this study were ascertained through the use of the following survey tools: Religious Life Inventory and the Rust Inventory of Schizotypal Cognitions (RISC). Moderating variables of the independent variable are the presence of low to extreme schizotypal cognitions, based on responses from the RISC inventory. Moderating variables of the dependent variable were the religious orientations of the individuals in both groups, designated as either extrinsic or intrinsic.

I selected this design because it addressed the gap in research related to previous studies that attempted to find a correlation between schizotypal cognitions and religious beliefs. This study contributes knowledge gained from comparing the presence of the two variables in both the group with a schizophrenia diagnosis and in the group where a schizophrenia diagnosis is absent. As outlined in Chapter 2, previous studies conducted comparing the two variables did not produce clear evidence in support of the correlation between religiosity and schizotypal cognitions. The religious orientation of Christianity was selected because of the inclusion of demons and angels, which are prevalent in religious delusions among individuals with schizophrenia (Siddle, Haddock, Tarrier, & Faragher, 2002).

In comparison to other research designs that compared the variables of schizotypal cognitions and religious beliefs/practices, a delineation of Christian religious orientation was not implemented, neither was a delineation of the presence of psychosis

delineated. By delineating the variables of religious orientation and the presence of psychosis, a more intentional assessment about psychosis, schizotypal cognitions, and religious beliefs and practices can be discussed.

Restatement of the Research Questions

The research questions that guided this study were as follows:

RQ1. Is there a statistically significant difference in schizotypal cognitions between Christian individuals with and without a diagnosis of Schizophrenia, as measured by the Rust Inventory of Schizotypal Cognitions (RISC)?

$H_0 1$: There is no difference between schizotypal cognitions of Christians diagnosed with schizophrenia and the schizotypal cognitions of Christians not diagnosed with schizophrenia.

$H_a 1$: There is a difference between schizotypal cognitions of Christians diagnosed with schizophrenia and schizotypal cognitions of Christians not diagnosed with schizophrenia.

RQ2. Is there a statistically significant difference of either extrinsic or intrinsic religious orientations between Christian individuals with and without a diagnosis of Schizophrenia, as measured by the Religious Life Inventory (RLI)?

$H_0 2$: There is no significant difference between extrinsic/intrinsic religious orientations of Christians diagnosed with schizophrenia and the extrinsic/intrinsic religious orientations of Christians not diagnosed with schizophrenia.

H_a2: There is a significant difference between extrinsic/intrinsic religious orientations of Christians diagnosed with schizophrenia and the extrinsic/intrinsic religious orientations of Christians not diagnosed with schizophrenia.

RQ3. Is there a statistically significant relationship/correlation between the variables of extrinsic or intrinsic religious orientations and low to extreme schizotypal cognitions as measured by the Religious Life Inventory (RLI)?

H_03: There is no statistically significant relationship/correlation between the variables of extrinsic or intrinsic orientations and low to extreme schizotypal cognitions.

H_a3: There is a statistically significant relationship/correlation between the variables of extrinsic or intrinsic orientations and low to extreme schizotypal cognitions.

Methodology

Population, Setting and Sample

A portion of the sample for this study was collected from a sample of individuals with schizophrenia from an outpatient mental health facility. Individuals without a diagnosis of schizophrenia were also recruited from an outpatient mental health facility, as well as from, local churches. For the sample size, Frankfort-Nachmias and Nachmias (2008) emphasized that the core principal used in dividing the groups using stratified sampling is that the researcher divides the groups based on the criterion variable. For my sample size, and G-Power analysis at .05 probability; Power .80; with a number of two groups using linear bivariate regression: two groups, difference between intercepts yield an ideal sample size is 180 (Buchner, n.d.).

Inclusion criteria was limited to a Christian religious orientation with either the

presence or absence of a schizophrenia diagnosis. The broad inclusion criteria were in consideration of a possible resource constraint that may have occurred when recruiting participants with a diagnosis of schizophrenia. For individuals within this study who had a diagnosis of schizophrenia, an inclusion criteria of individuals who were not currently psychotic and are under a consistent therapy and medication regiment was implemented. Participants verified this information on a signed verification form, which was included in the assessment packet provided to all research partners (Appendix D). Exclusion criteria included individuals who were actively psychotic and who were not under medical and/or psychological care. Exclusion criteria individuals who were not considered mentally or psychologically capable of providing informed consent as included in this study. This exclusion criterion was implemented as an ethical approach in consideration that this group is considered a vulnerable research group.

Procedure for Recruitment

Before the recruitment process was initiated an application was submitted to the Institutional Review Board (IRB) to approve the research study and data collection process. The IRB approval number was: 04-06-18-0281942. Upon IRB approval, I contacted local outpatient mental health facilities and local churches for research partners who would present invitational materials to individuals who met inclusion criteria for this study. The instruments, Religious Life Inventory (RLI) (Appendix A) and the Rust Inventory of Schizotypal Cognitions (RISC) (Appendix B) was administered in the respective settings depending on the location of the participants. Informed consent forms were given in written form to each participant, and was signed by each participant.

Demographic information was recorded in the initial interview and included: gender, religious orientation, highest level of education completed, and confirmation of schizophrenia diagnosis or a lack thereof (Appendix D).

Research partners were recruited before the selection of participants and received a recruitment coordination request (Appendix E). Research partners assisted the researcher in presenting invitational materials to individuals who met inclusion criteria. recruitment coordination requests were signed by the authorization official of the outpatient mental health clinic that was used in this study. Research partners included church pastors, clinical therapists, and psychiatrists who were recruited to present invitational materials to individuals who met inclusion criteria for this study. Specifically, the clinical therapists and psychiatrists presented invitational flyers to individuals who met selection criteria and were interested participating in the research study (Appendix F). The study packet included the consent form, demographic form, RISC assessment forms, and R-RLI assessment forms. They were placed in a manila envelope and given to the research participants. The informed consent form was presented, included a brief synopsis of the purpose of the study, and was signed and dated by the participant. I presented the participant with the demographic form. Once the demographic form was completed, the participant completed the study instruments. My rationale was that if an individual could complete a personality assessment with minimal risk, the assessment tools used within this study would also present minimal risk to the participant.

Instrumentation

Instrument for Independent Variable

The Rust Inventory of Schizotypal Cognitions (RISC) (Appendix A) was used to measure the presence of schizotypal cognitions in both groups. The author and creator of the RISC assessments granted permission to use his assessment. The RISC is a short questionnaire, consisting of 26 items, designed to assess for schizotypal cognitions in both individuals with schizophrenia as well as in the normal population (Rust, 1988). All items are statements with a 4-point forced choice response set of either: Strongly Agree, Agree, Disagree, and Strongly Agree. There are 13 positive items that are scored for a "Strongly Agree" response. Likewise, the positive items are balanced by 13 negative items, which are scored in the reverse direction. Once the individual's responses are recorded, points are scored for the 26 items and added up to obtain the client's raw score. Interpretative categories for RISC scoring is as follows: Scores 1–20 = Extremely low; Scores 21–26 are Very Low; Scores 27–30 are Low; Scores 31–34 are Below Average; Scores 35–38 are Average; Scores 39–42 are Above Average; Scores 43–46 are High; Scores 47–50 are Very High; and Scores 51–78 are Extremely High. Higher scores on the RISC represent a higher incidence of schizotypal cognitions. The RISC assessment was developed under the foundational principle that schizotypal cognitions lie on a continuum of bizarre idea systems to normal cognitions (Feldman & Rust, 1989). Of particular interest for this study was that the RISC was specifically developed and standardized with special attention to normal distribution in the general population. Subsequently, this assessment does not have obvious cues identifying them as good (healthy and normal) or

bad (ill or mad), which has led to large positive biases in the distributions for the normal population (Rust, 1988). This aspect of the assessment was important to this study because this study included a group from the non-schizophrenic population. The assessment specifications had two-dimensions: the first dimension is traditionally associated with positive schizophrenic and schizotypal symptomatology (delusion, derealization and depersonalization, ideas of reference, intrusive and extrusive thought, hallucination, and persecution), as well as idea systems often associated with magical ideation, superstition, secretiveness, coherence of identity, subjectivity, ritual and fantasy (Rust, 1989). The second dimension covered ways in which the cognitive variation may manifest itself: insight, emotion, motivation, social observation, distorted reality, and defense mechanisms (Rust, 1989). Pilot studies for this assessment were conducted on samples from London University, consisting of men and women from a student, academic, and support populations (Rust, 1989).

In terms of validity, the RISC has comparable validity to similar scales that measure schizotypal cognitions such as the Eysenck Personality Questionnaire (EPQ), (1976), as well as the Minnesota Counseling Inventory (MCI) (1957). Norms for the RISC assessment are based on a study conducted with a sample of 61 acute patients at psychiatric clinics and hospitals (Rust, 1989). The study compared the scores between a group of individuals with acute schizophrenia to non-schizophrenic groups. Analysis of variance comparing RISC scores in the schizophrenic group (mean=47.83, SD=9.87) with the non-schizophrenia group (mean=35.67, SD=7.67) was significant at the .001 level. The split-half reliabilities and Cronbach alpha coefficient for the RISC were both

.77. These scores were consistent when the schizophrenic group was compared to additional groups such as a Hong Kong group (mean=38.65, SD=5.41) and a Venezuelan group (mean=34.27, SD=5.48). According to Rust (1989) if the scaled score is measured at 49 was considered a cutoff score, more than 4 out of 10 individuals with schizophrenia had a score higher than the cutoff score, compared to fewer than 3 out of 200 non-schizophrenic controls. In assessing to what extent a high score reflects individuals "at risk" for schizophrenia or schizotypal disorders, for each positive item response there is an increased indication of the subject's exhibiting a schizophrenia or schizotypal symptom.

Instrument for Dependent Variable

The Religious Life Inventory (RLI) (Appendix B), which was used to identify the extent to which each individual actively practices his/her religion/spirituality, is a scale that is based on the theory that there are various personality and religious variables that should be considered when analyzing the dimensions of an individual's religiosity (Hills, Francis, & Robbins, 2005). The author and creator of the RLI assessment has granted permission to use the assessment. The RLI is a 32-item inventory, which comprises subscales for measurement of the extrinsic (11 items), intrinsic (9 items) and quest (12 items) dimensions of religiosity. Items are answered on a 9-point scale, church attendance is also measured on a 5-point scale.

According to this RLI, there are two outlooks of religiosity: extrinsic and intrinsic. The individual with an extrinsic orientation is not necessarily fully invested in religion, rather they use religion in the context of providing specific needs such as:

security and solace; sociability and distraction; status and self-justification (Hills et al., 2005). On the other hand, individuals with an intrinsic orientation are seemingly more internally invested in religion and in a sense embraces and "lives" his/her religion (Hills et al., 2005). In comparison, in theological terms, the extrinsic individuals "turn to God without turning from themselves"; on the other hand, the intrinsic individuals "find their master motive in religion" (p.1390). Additionally, the "Quest" dimension of the inventory is defined as "the degree to which an individual's religion involves an open-ended, responsive dialogue with existential problems raised by the contradictions and tragedies of life" (Hills et al., 2005, p.1390). For Quest-oriented individuals their religion is an interactive way of finding meaning in their personal and social lives. According to Hills et al. (2005) the quest orientation seeks to measure the intellectual, rather than the doctrinaire, dimension of religion. Although there are distinctions between the extrinsic and intrinsic religious individual the RLI does not assume the two concepts to mutually exclusive as some other characteristics of each distinction may overlap (Hills et al., 2005).

In terms of validity, norms for the RLI are based on a study conducted by Hill et al. (2005) in which 1361 undergraduate students' respondents (399 men and 962 women) completed the RLI inventory and indicated their religious affiliation, ages of the respondents ranged from 18 to 40 years old. The study was based on the eight most frequently mentioned Christian denominations and those who stated no religious affiliation. Christian denominations included: Anglican (25 %), Roman Catholic (12%), Methodist (11%) and other Free Churches (Baptist, Congregational Evangelical,

Pentecostal, and United Reformed-26%), while 26 % claimed no religious affiliation. Originally, the results of the study were assessed for significant associations between religious orientation as calculated by the RLI scale and gender, age, and frequency of church attendance and prayer. There were no significant associations with gender. Each of the orientations were significantly associated with age: extrinsic $r = -0.07$, $p < 0.05$; intrinsic $r = 0.20$, $p < 0.001$; quest $r = 0.11$, $p < 0.001$, indicating that while intrinsicity and quest both increased with age, the extrinsic orientation declined. The intrinsic and quest dimensions were positively associated with church attendance, $r = 0.68$ and $r = 0.25$, both significant at the $p < 0.001$ level. frequency of personal prayer was positively associated with each of the orientations: extrinsic = 0.05, $p <0.05$, intrinsic $r = 0.71$, $p < 0.001$, quest $r = 0.31$, $p < 0.001$. In terms of psychometric reliability as compared to the original Religious Life Inventory (1982), Goodness of Fit increased from 0.78 to 0.90. The item composition of the intrinsic scale is identical in both the original and revised scales and the scale reliability was 0.93. There were also substantial, significant correlations between the three religious orientations as measured by the RLI: extrinsic/intrinsic, $r = 0.20$, $p < 0.001$; extrinsic/quest, $r = 0.48$, $p < 0.001$; intrinsic/quest, $r = 0.49$, $p < 0.001$. The Cronbach's alpha for the revised RLI rose from 0.77 to 0.83 despite the shorter assessment design.

Threats to Validity

Frankfort-Nachmias and Nachmias (2008) summarizes the intent of validity as answering the question, "Am I measuring what I intend to measure?" Content validity refers to whether the measurement tools used in a study measure all of the attributes of

variable that are needed to sufficiently express the variable's use in the study. In terms of content validity, both the RISC and RLI measure the attributes associated with schizotypal cognitions as well as intrinsic and extrinsic religious beliefs/practices. Face validity is subjective and requires the researcher's discretion as to whether the measurement instrument is appropriate for measuring the intended variables. Based on the validity of both measurements used in the study as previously referenced, both assessment tools present to measure the variables they purport to measure.

In terms of threats to validity, test reactivity was a potential threat, as there was potential for individuals with schizophrenia to perhaps recognize some of the assessment as triggers associated with their psychotic states. However, this threat was very unlikely with the exclusion measures in place which included gaining verification that a prescribed therapy and psychotropic medication regiment was in place. If in the event there was reactivity to any test items, measures for debriefing therapy were put in place.

Ethical Considerations

Protection of Participants' Rights

Research involving individuals considered to be a "vulnerable" population presents its own challenges in ethics and ensuring that no additional psychological distress occurs for these individuals. Dunn, Candilis, and Roberts (2006) contended that the personal sufferings and public health consequences of schizophrenia create a societal need for research studies intended to contribute to the treatment and care of individuals with schizophrenia. With this in mind, it is inevitable that researchers recruit individuals who are diagnosed with schizophrenia to research issues from the perspectives of those

who are affected by the disorder (Dunn et al., 2006). However, for researchers who take on the task of such research, ethical consideration measures for the general welfare of individuals with schizophrenia should be taken.

The overarching ethical consideration for this study was to consider if the risks associated with the research study outweighed the benefits of the study. This study is quantitative in nature and only used closed ended questions which are answered on a Likert scale. This format reduces what Dunn et al. (2006) referred to as “respondent burden” which includes the time, energy, and emotional expenditures by participants. This study took necessary precautions to ensure the reduction of such risk. In terms of psychosocial risks such as stigmatization and loss of confidentiality, this research design did not include any personal identifying information and was administered to individuals who already had a diagnosis of schizophrenia, rather than individuals who were in the prodromal stage of diagnosis (Dunn et al., 2006). With individuals who already have an established schizophrenia diagnosis, there is no risk of increasing the potential of developing symptoms for individuals who may be in the prodromal stage of the diagnosis (Dunn et al., 2006).

Another precaution that was taken to minimize ethical concerns was included in the selection criteria. At the advisement of an IRB representative to minimize ethical risks by avoiding the use of actively psychotic individuals, individuals within this study that had a diagnosis of schizophrenia were included on the basis that they could confirm that they were adhering to a prescribed therapy and psychotropic medication regiment. Since this research study provided informed consent forms, it ensured the presence of

decision-making capacity as well as voluntariness (Roberts, Warner, & Brody, 2000). In a study related to the attitudes of participation in research studies from the perspective of individuals with schizophrenia, Roberts et al. (2000) confirms that these individuals strongly endorsed schizophrenia research. Their endorsement of schizophrenia research was rooted in a desire to help in the contribution to science toward the help of individuals with schizophrenia, as well as toward fostering a sense of hope for both the individuals who currently have a diagnosis, and for those who may receive a diagnosis in the future.

In respect to the confidentiality of the participants of this study, participant names were not included on the assessment tools included in the assessment packet. Data will be maintained for at least 5 years in a locked box which will contain original materials used during the research study. At the end of the 5 years, all original data will be securely shredded and discarded.

Summary

This quantitative study used a cross-sectional research design to compare the schizotypal cognitions of Christian individuals with schizophrenia to their non-schizophrenic counterparts to investigate the potential for an individual's religious beliefs to affect schizotypal cognitions and vice versa. Data was collected from participants from outpatient mental health clinics and churches. Data on religious orientation and schizotypal cognitions was collected using the Religious Life Inventory and the Rust Inventory of Schizotypal Cognitions. An ANOVA was implemented to determine a statistical difference between the independent and dependent variables, followed by additional analyses to further examine the relationships between variables.

Chapter 4: Results

Introduction

The purpose of this study was to quantitatively examine the differences in the religious beliefs and practices of Christian individuals both with and without a diagnosis of schizophrenia. Three hypotheses were tested using a variety of statistical techniques, to determine whether there were significant differences between religious orientations and schizotypal cognitions of Christian individuals with and without a diagnosis of schizophrenia. I also examined the relationship between religious orientation and schizotypal cognitions.

The survey tools used in this study were the Rust Inventory of Schizotypal Cognitions (RISC) and the Religious Life Inventory (RLI). The RISC assessments were coded based on a 9-point interpretation scale ranging from extremely low schizotypal cognitions to the extremely high schizotypal cognitions range. During initial data entry, responses to the RLI were coded based on the 9-point response scale endorsed by each participant. Incomplete responses were replaced by the mean for the scale. Responses for the RLI were later coded based on the highest scores of the three scales measured by the RLI: *Intrinsic*, *Extrinsic*, and *Quest* religious orientations. The Likert scale inherent within the RISC assessments were used to code each individual's schizotypal scale designation. Likewise, the three religious life distinctions: Intrinsic, Extrinsic, and Quest were also converted into numerical representations.

It is important to note that the Quest religious life orientation was not included in the original research questions, as Intrinsic and Extrinsic religious life orientations are

considered the primary religious life orientations as defined by the creator of the RLI (Allport, 1950). However, to determine what affect the Quest religious life orientation had on the schizotypal variable, separate chi-squares and ANOVA's were conducted; the first only included Intrinsic and Extrinsic variables as religious life orientation designations (Table 6). A Cronbach Alpha was conducted for the scales used within this study and rendered the following results: RISC =.834; Intrinsic=.773; Extrinsic=.804; and Questioning= .745. Typically, a Cronbach Alpha score should be greater than or equal to .75; therefore, the four scales of the survey tools used within this study are adequate in the measure of consistency of scale.

This chapter includes the results of these analyses and provides a description of the participants sampled in this study.

Demographics

Over a course of a 15-week period, concluding in the summer of 2018, invitational flyers were presented to individuals at an outpatient mental health clinic and local churches, inviting individuals to participate. Fliers were presented by therapists and clinicians and were also posted in the lobby waiting room areas. A total of 160 individuals responded with interest to participating in the study and a total of 130 individuals signed informed consent forms and completed the survey packets. Of the 130 participants 69%of participants were Christian individuals without a diagnosis of schizophrenia (n=90) and 30% of participants were Christian individuals with a diagnosis of schizophrenia (n=40). Recruitment rates for Christian individuals without a diagnosis of schizophrenia was on target with 90 participants; however, participants with a

diagnosis of schizophrenia 44 percent of the projected goal(*n*=90). Table 1 is a summary the demographic characteristics of the study sample.

Table 1
Demographic Characteristic of Study Sample (N=130)

Characteristic	N	%
Age Range		
18-20	3	2.3
21-30	26	20.0
31-40	44	33.8
41-50	31	23.8
51-60	11	8.5
61-70	8	6.2
71-80	1	0.8
N/A	6	4.6
Religious Group		
Baptist	26	20.0
Catholic	13	10.0
Evangelical	1	0.8
Jehovah's Witness	2	1.5
Methodist	3	2.3
Pentecostal	7	5.4
Presbyterian	1	0.8
Seventh Day Adventist	1	0.8
Non-Denominational	67	51.5
N/A	9	6.9
Educational Background		
High School Drop Out	15	11.5
G.E.D.	9	6.9
High School Diploma	44	33.8
Associates	11	8.5
Bachelor's Degree	31	23.8
Masters Degree	12	9.2
Doctorate Degree	2	1.5
Gender		
Male	38	29.2
Female	89	68.5
N/A	3	2.3

More than half of participants (*n*=89) of participants were female, while 29.2 percent of participants were male (*n*=38). Most participants (*n*=44) were between the ages of 31-40. Only one participant (*n*=1) was between the ages of 71–80. Educational levels were fairly diverse, with educational ranges from individuals who did not complete high school to individuals with doctoral degrees. The educational level least represented were participants with doctoral degrees (*n*=2); while the most represented educational level was composed of individuals whose highest level of education completed was high school (*n*=44).

Demographics within the control group showed that 18.9% (*n*=17) were male and 76.7% (*n*=69), with 4.4% (*n*=4) individuals declining to designate gender. Within in the experiment group, 47.5% (*n*=19) of participants were male and 52.5% (*n*=21) were female. In terms of educational level, it appeared that on average individuals with schizophrenia (35%; *n*=14) had more of an occurrence of high school drop-outs and GED's than the control group (11%; *n*=10). The average age of participant in the control group was 38 years old; the average age of participants in the experiment group was 42 years old.

Preliminary Analysis

A Pearson correlation analysis was conducted to determine a relationship between the demographic variables as well as schizotypal cognitions and religious life orientation variables (Intrinsic, Extrinsic, and Quest, Table 2). The results of the correlation analysis showed that the Quest religious life orientation and RISC scores were correlated at r= 0.225 (p< .05). This means that the higher the Quest score, the higher the RISC scores.

Schizotypal Range and RISC scores are correlated at *r*= 0.899 (*p* <.001); which means the higher the schizotypal range, the higher the RISC score. Education and RISC are negatively correlated at *r*= -0.249 (*p* >.01); which means the higher the education level, the lower the RISC score. Quest and Intrinsic were correlated at *r*=0.284 (*p* <.01); which means the higher the Quest score the higher the Intrinsic score. Age and Intrinsic scores were correlated at *r*= 0.425(*p* <.001); this means that the older the subjects, the higher the Intrinsic score. Quest and Extrinsic were correlated at *r*= 0.424(*p* <.001); this means that the higher the Quest score, the higher the Extrinsic score. Finally, the education variable and schizotypal range were negatively correlated at *r*= -0.257(*p* <.05); this means that the higher the education level, the lower the schizotypal range.

Table 2

Pearson Correlation Table

	RISC	INT	EXT	QUEST	SCHIZ	AGE	EDU
RISC	1.000						
INT	-0.153	1.000					
EXT	0.067	0.086	1.000				
QUEST	0.225*	0.284***	0.424***	1.000			
SCHIZ	0.899***	-0.134	0.083	0.166	1.000		
AGE	-0.043	0.425***	-0.197	0.039	-0.072	1.000	
EDU	-0.249***	0.103	-0.121	0.123	-0.257*	0.065	1.000

Research Question 1

The first research question and null hypotheses (Is there a statistically significant difference in schizotypal cognitions between Christian individuals with and without a diagnosis of Schizophrenia, as measured by the RISC?) predicted that there would be a statistically significant difference in schizotypal cognitions of Christian individuals both

with and without a diagnosis of schizophrenia, with the null hypothesis predicting there would be no significant difference. To test this research question, a *t*-test was performed to examine the differences the between the schizotypal cognitions of both groups. The *t*-test was significant (t= -5.97, p <.001). The results of the *t*-test indicated that individuals with schizophrenia's average schizotypal cognitions ranged between above average and high, while individuals without a diagnosis of schizophrenia's schizotypal range was between low and below average. Differences in schizotypal ranges are represented in Figure 1 and discussed in the descriptive statistics section of this chapter. Values for the *t*-test are presented in Table 3.

Table 3

T-test, Schizotypal Range, Control versus Schizophrenic

	Control	Schizophrenic
Mean	3.80	628
Variance	5.31	3.49
Observations	90.00	40.00
Pooled Variance	4.75	
Df	128.00	
t	-5.97***	

****p<.001*

Research Question 2

The second research question and null hypotheses (Is there a statistically significant difference of either Extrinsic or Intrinsic religious orientations between Christian individuals with and without a diagnosis of Schizophrenia, as measured by the RLI?) predicted that there would be a statistically significant difference in the religious life orientations of Christian individuals both with and without a diagnosis of

schizophrenia; with the null hypothesis predicting there would be no significant difference. To test this question a *t*-test was performed to identify whether there was a difference between the religious life orientations between both groups (t= -5.97) p= .001. The results of the *t*-test were that there was no significant difference between the religious life orientation of both groups. For both groups, the religious life orientations were evenly divided between Intrinsic and Extrinsic religious life orientations. A Chi-Square test was performed to determine the likelihood of either group identifying with either Intrinsic, Extrinsic, or Quest religious orientations. The Chi-Square (Table 4) represents the virtually even distribution of religious life orientation between both groups. Table 4 shows that there is no difference in control versus Schizophrenic with regard to whether they are Intrinsic or Extrinsic (Chi-Square =.014, p <.05). Table 5 shows that when Intrinsic, Extrinsic, and Quest are separated as three distinguished religious life orientations, it appears that Extrinsic is relatively rare among individuals with schizophrenia, but this effect did not reach significance at Chi-Square = 5.28, p <.05.

Table 4

Chi-Square, Control versus Schizophrenic by Intrinsic versus Extrinsic

	Intrinsic	Extrinsic
Control	46	44
Schizophrenic	20	20

Chi-Square =.014, p =.91

Table 5

Chi-Square, Control versus Schizophrenic by Intrinsic versus Extrinsic versus Quest

	Intrinsic	Extrinsic	Quest
Control	32	36	22
Schizophrenic	17	8	15

Chi-Square =5.28, p =.07

Research Question 3

The third research question and null hypotheses (Is there a statistically significant relationship/correlation between the variables of Extrinsic or Intrinsic religious orientations and low to extreme schizotypal cognitions as measured by the RLI?) predicted that there would be a statistically significant difference/relationship between the variables of Extrinsic or Intrinsic orientations and low to extreme schizotypal cognitions with the null hypothesis predicting there would be no significant difference. To test this question a *t*-test was performed to examine the relationship between religious life orientation (Intrinsic and Extrinsic) and schizotypal cognitions (low to extreme ranges). Values for the *t*-test analysis are presented in Table 6. Table 6 shows significance (t =-1.67, p <.05) that individuals who were Extrinsic in their religious life orientations had higher levels of schizotypal cognitions, than individuals who were Intrinsic.

An ANOVA was conducted to incorporate the Quest religious life variable. The Quest religious life variable was not included in the original *t*-test because it was not originally sited in the research questions. However, the Quest religious life orientation is secondary to the primary religious life orientations of the Intrinsic and Extrinsic religious life

orientations included on the Religious Life Inventory. Therefore, the Quest religious life variable was incorporated secondarily within this study.

It should be noted that during the original data coding process, individuals who scored high on the Quest scale were also coded either Intrinsic or Extrinsic, depending on whether they also scored highest on either the Intrinsic or Extrinsic religious life scale. The previous t-test did not distinguish the Quest religious life scale as a separate entity. Therefore, an ANOVA (Table 7) was conducted to determine a significance between all three religious life orientations, inclusive of Quest. When an ANOVA was done incorporating "Quest" as its own independent religious life orientation, it was found that the Quest religious life orientation's schizotypal ranges (f= 4.87, p <.01) were significantly higher than in the previous t-test that showed significance between the schizotypal cognitions and the Extrinsic religious life variable (t= 1.67, p <.05). Values for the ANOVA that incorporated the Quest religious life orientation as a third, and separate variable is represented in Table 7.

Table 6

t-test, Schizotypal Range, Intrinsic versus Extrinsic

	Intrinsic	Extrinsic
Mean	4.20	4.92
Variance	5.94	6.04
Observations	66	64
Pooled Variance	5.99	
df	128.00	
t	-1.67*	

Note: For this test, subjects who were high on both Quest/Intrinsic and Quest/Extrinsic were classified by the higher of the two ratings, so all subjects were categorized as either Intrinsic or Extrinsic

*p<.05

Table 7

ANOVA, Schizotypal Range, Intrinsic versus Extrinsic versus Quest

Summary

Groups	*Count*	*Sum*	*Mean*	*Variance*
Intrinsic	49	201	4.10	5.59
Extrinsic	44	185	4.20	5.70
Quest	37	207	5.59	5.80

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	η^2
Between Groups	55.43	2.00	27.72	4.87	0.009	0.071
Within Groups	722.57	127.00	5.68			
Total	778.02	129.00				

Additionally, an ANOVA was conducted to further analyze variances in schizotypal cognitions within each group. Table 8 shows the interaction between the two variables specifically in the control group. The ANOVA shows that Quest was most significant than both Extrinsic and Intrinsic religious life orientations, and Extrinsic was more significantly represented than Intrinsic. The result of the ANOVA was significant (f= 4.04, p= .02). The religious life orientation variable explains 8.5 percent of the variance. A similar analysis was conducted for the experiment group (see Table 9) and showed that there is no significant difference among the three religious orientations for individuals with schizophrenia (f= 41.77, p= .18).

To further analyze the intricacies of the interaction of the schizotypal and religious life orientation variables, a multiple regression was conducted (see Table 10). The multiple regression shows that there is a strong main effect for the control group versus the experimental group, with individuals with schizophrenia higher on the

schizotypal cognition ranges than the control group. There is also a significant effect for religious orientation, where individuals with the Quest religious orientation scored higher overall on schizotypal cognition scales. When the individual groups were assessed for trends, it was shown that individuals with schizophrenia who identified with an Intrinsic religious life orientation scored higher than those with an Extrinsic religious life orientation, on the schizotypal cognition scales. The opposite trend was found in the Control group, with individuals who identified an Extrinsic religious life orientation, on average, scored higher on the schizotypal cognitions scale than their Intrinsic religious life orientation counterparts.

Table 8

ANOVA, Control Group, Schizotypal Range, Intrinsic versus Extrinsic versus Quest

Summary

Groups	*Count*	*Sum*	*Mean*	*Variance*
Intrinsic	32	96	3.00	3.48
Extrinsic	36	142	3.94	5.48
Quest	22	104	4.73	6.30

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	η^2
Between Groups	40.15	2	20.07	4.04	.02	0.085
Within Groups	432.25	87	4.97			
Total	472.40	89				

Table 9

ANOVA, Schizophrenic Group, Schizotypal Range, Intrinsic versus Extrinsic versus Quest

Summary

Groups	*Count*	*Sum*	*Mean*	*Variance*
Intrinsic	17	105	6.17	3.03
Extrinsic	8	43	5.38	5.70
Quest	15	103	6.87	2.55

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	η^2
Between Groups	11.90	2	5.95	41.77	.18	0.087
Within Groups	124.08	37	3.53			
Total	135.98	39				

Table 10

Predictors of Schizotypal Range

Regression Statistics	
Multiple R	0.52
R Square	0.27
Adjusted R Square	0.26
Standard Error	2.12
Observations	130

	Coefficients	Standard Error	t Stat	P-value
Intercept	-1.32	1.43	-0.92	0.36
C/S	3.47	1.00	3.48	<.001
Religious Life	1.41	0.69	2.03	0.04
Interaction	-0.54	0.47	-1.14	0.26

Descriptive Statistics

Figure 1 displays trends in schizotypal cognitions in both groups. Individuals in the control group were mostly represented in the extremely low to average schizotypal cognitions ranges; whereas, individuals with schizophrenia were mostly represented in the average to above average schizotypal cognitions range. Notably both groups were represented on both ends of the schizotypal cognition spectrum. This figure challenges assumptions that individuals with schizophrenia will most likely have high levels of schizotypal cognitions; and that individuals without schizophrenia will most likely have low levels of schizotypal cognitions. Figure 1 shows both groups being represented on each aspect of the schizotypal spectrum. Figure 2 is a visual representation of the ANOVA represented in Table 9, which addresses how the variables of schizotypal cognitions range and religious life orientations interact between both groups. The results were reflective of the study results which determined that individuals in the experiment group (individuals with schizophrenia diagnosis) scored higher on the schizotypal cognitions on average than individuals in the control group (individuals without a schizophrenia diagnosis). It also shows that individuals who identified as having a Quest religious life orientation showed to have higher levels of schizotypal cognitions. It is important to note that in both groups lower schizotypal cognitions ranges are seen within the Intrinsic religious life orientation group (mean= 6.17); while higher schizotypal cognitions ranges are seen in the Quest religious life orientation group (mean= 6.87). A further discussion and analysis of this significance is discussed in chapter 5.

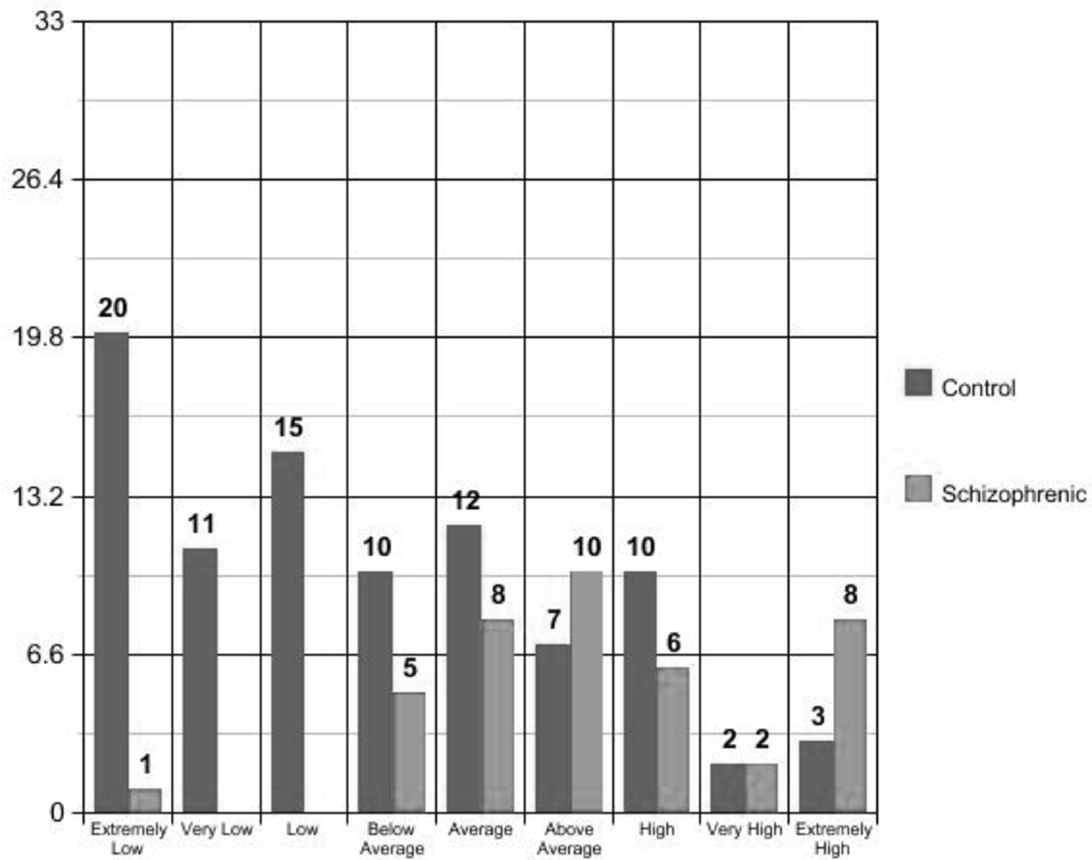

Figure 1. Number of subjects classified by each of the levels of schizotypal range.

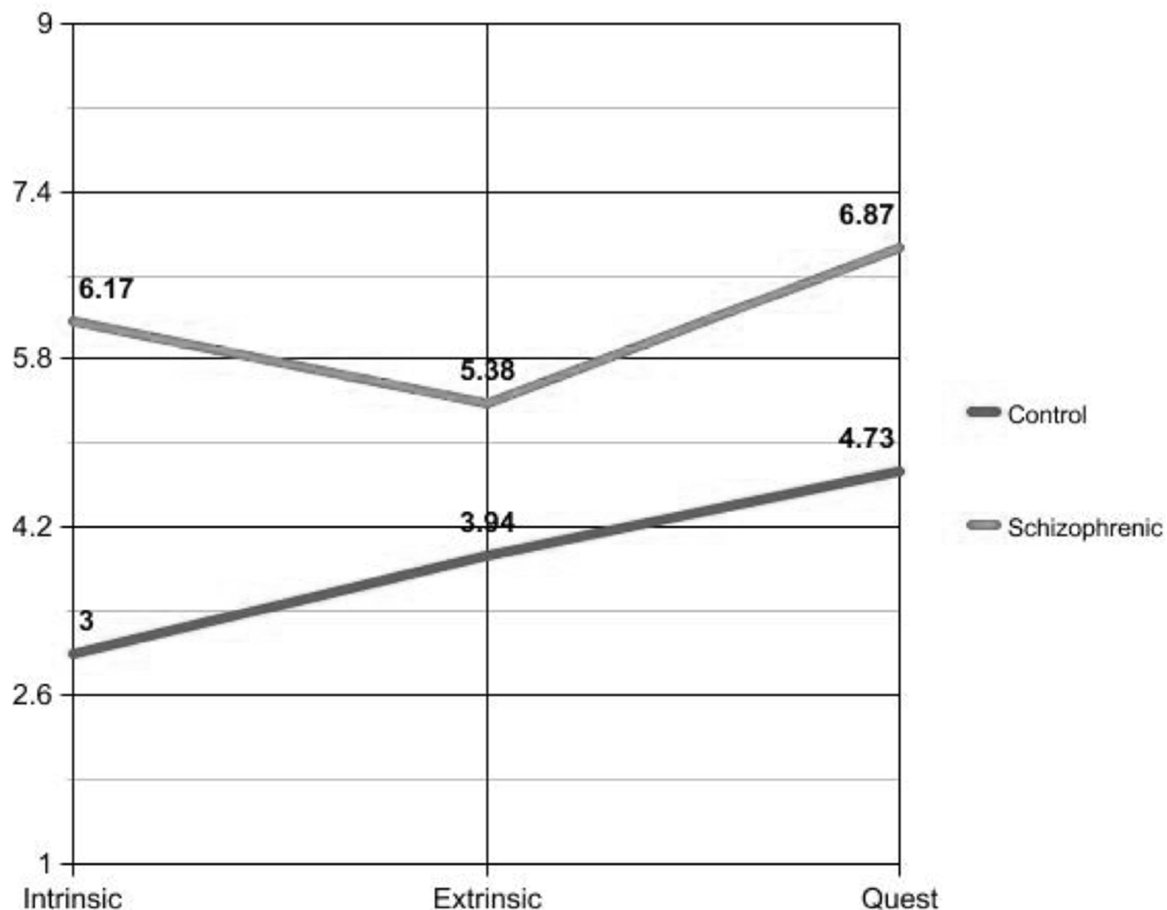

Figure 2. Schizotypal Range: Control vs Schizophrenic by Intrinsic vs Extrinsic vs. Quest.

Note: *Schizotypal Cognitions range is represented on the y-axis with numbers as a representation of the 9-point scale: (1- extremely low; 2- Very Low;3- Low; 4-Below Average; 5-Average; 6-Above Average; 7-High; 8-Very High; 9-Extremely High)

Summary

The statistical analyses of this study's data supported the research questions in which it was grounded, with significant findings to support research questions 1 and 3. Individuals with schizophrenia scored higher on the schizotypal cognitions scales, showing that individuals with an Intrinsic religious life orientation were represented on the higher end of the schizotypal scales than their Extrinsic religious life orientation

counterparts. The opposite trend in the interaction of the two variables was seen in the control group, whereas higher levels of schizotypal cognitions were correlated with the Extrinsic religious life orientation. Although statistical analyses supporting research question 2, which asked if there was a significant difference between the religious life orientations of both groups, did not render significant results; the implications of the null hypothesis contributes to the knowledge of the study, which will be further explored in Chapter 5. Analyses supporting research question 3 rendered significant results showing a positive correlation between the Quest religious life variable and higher levels of schizotypal cognitions in both groups.

The following chapter will summarize the study and present conclusions about the findings. Chapter 5 will also discuss the social change implications of these findings, the limitations of the study, and future recommendations for continued research in the area.

Chapter 5: Discussion

Introduction

I conducted this study to evaluate the relationship between religiosity and schizotypal cognitions between two groups: Christians with a diagnosis of schizophrenia and Christians without a diagnosis of schizophrenia. I sought to examine whether there was a correlation between higher" levels of religiosity and higher ranges on the schizotypal cognitions scale. The primary factor was how was schizotypal cognitions related to a diagnosis of schizophrenia, and secondarily how it related to the factor of identifying as Christian. This study sought to normalize the use of religion in a way that encourages its use as a coping method with individuals with a diagnosis of schizophrenia. Although several sites were approached to assist in the recruitment of participants, ultimately, the primary sample for this study was drawn from an outpatient mental health clinic (schizophrenic group), as well as from local churches (non-schizophrenic group).

My social change agenda for this study was to desensitize against the stigma of having a schizophrenia diagnosis by showing schizotypal cognitions were also, in some form, found in the normal population. This study purpose was to normalize having schizotypal cognitions in a way that both individuals from the schizophrenia community and the normal population alike could find a common bridge of humanity within the human experience of exploring religious beliefs systems without bias toward an individual's mental health status.

This study yielded several significant findings. The finding that rendered the most robust results was that within both groups (f= 4.04, p= .02), the Quest religious life

orientation was most significantly attributed to higher scores on the schizotypal cognitions scales. When Quest was not included, and was designated as either Intrinsic of Extrinsic, which are defined by the authors of the Religious Life Inventory (Hills et.al., 2005) as being the primary outlooks of religiosity, the Extrinsic religious life orientation was shown to have a higher schizotypal range over the Intrinsic religious life orientation (t= -1.67, p <.05). Also significant was that individuals with schizophrenia scored higher on average on schizotypal cognition ranges than their non-schizophrenia counterparts. However, results that did not show statistical significance in terms of interaction effect but were still significant for this study, was the fact that individuals with schizophrenia with an Intrinsic religious life orientation scored higher on the schizotypal scale than their Extrinsic religious life counterparts. While within the control group, individuals with Extrinsic religious life orientation scored higher on the schizotypal scale than their Intrinsic counterparts. The results of the study specifically supported research questions one and three.

Interpretation of Findings

Schizotypal Cognitions

Johns and Van (2001) defined schizotypal traits as personality traits of experiencing ‘psychotic’ symptoms, and Joseph, Smith, and Diduca (2002) defined it as aspects of personality that are relevant to the predisposition toward psychotic disorder, namely schizophrenia. Furthermore, Johns and Vans (2001) identifies the occurrence of finding schizotypal symptoms in the normal population. The RISC assessments tool used for this study was designed to measure dimensions of schizotypal symptomology such as:

delusions, derealization and depersonalization, ideas of reference, intrusive and extrusive thought, hallucinate, and persecution.

The findings of this study support the intrinsic nature of schizotypal cognitions in individuals with schizophrenia; this study also supports the idea that schizotypal cognitions may also be found in the normal population (albeit not statistically significant in this study). Notably, individuals in the schizophrenia group are represented on the average to extremely low spectrums of the schizotypal scale (17%); while individuals from the control group (without schizophrenia) were represented on the above average to extremely high range of the schizotypal spectrum (45%). This finding illustrates that having schizotypal cognitions is not exclusive to individuals with schizophrenia and average levels of schizotypal cognitions is not exclusive to the normal population.

Intragroup Schizotypal Trends

I performed an ANOVA that showed intragroup interactions between schizotypal cognitions and religious life orientation. The analysis contributed insight into trends seen within each group. The ANOVA showed a trend that within the schizophrenia group individuals with an Intrinsic religious life orientation scored higher on the schizotypal scale than their Extrinsic counterparts. The Intrinsic religious orientation is viewed by researchers as being a “true believer” or someone who is “fanatical” when it comes to religion (Ryan, Rigby, & King, 2010). This trend would have the potential to support researchers such as Mohr (2004) who suggested that individuals with schizophrenia are more prone to religiosity and therefore have lower overall mental health functioning than their nonreligious counterparts. This trend would be a good topic for further research on a

larger sample of individuals with schizophrenia to assess whether a significant correlation exists with a larger sample size. Interestingly, the same ANOVA analysis found a trend that the opposite correlation was true for individuals within the control group; within the control group, a similar correlation to the overall significant findings of the study comparing both groups (t= 1.67, p <.05), found that individuals with an Extrinsic religious orientation scored higher on the schizotypal scale than their Intrinsic counterparts. This is interesting because the only variable that differs between the two groups is a diagnosis of schizophrenia. It is possible that a diagnosis of schizophrenia has bearings on whether an Intrinsic religious life orientation has a positive correlation with higher schizotypal levels. This is another area for future research.

Religious Life Orientation

Religious orientation theory originated within the pioneering work of Allport and Ross (1967) as well as Batson and Ventis (1982); (Francis, Village, & Powell, 2017). Allport and Ross (1967) distinguished between two motivational bases for being religious: Intrinsic religiosity and Extrinsic religiosity. Extrinsic religiosity represented church goers whose religion served nonreligious ends and Intrinsic religiosity in which religion was an end in itself (Francis et al., 2017). It was not until later that Batson and Ventis (1982) added a third religious orientation, which was the Quest religious orientation. The Quest religious orientation was intended to give recognition to a form of religiosity that embraced doubt and existentialism (Francis et al., 2017). Within this study, the concept of the two primary religious life outlooks being Extrinsic and Intrinsic, which is a position held by the creators of the RLI, was initially upheld during the

developments of this study. However, because the Quest religious orientation is an intrinsic component of the RLI, scores for this dimension were included in most of this study's analyses. According to Hills et al. (2005) individuals with an Intrinsic orientation are seemingly more internally invested in religion and embody their religion. On the RLI, this dimension was measured by statements such as "I try to carry my religion over into my other dealings in life," "Quite often I have been keenly aware of the presence of God or the Divine Being, "and "My religious beliefs are what lie behind my whole approach to life." Individuals who scored high on the Intrinsic religious life scale may be more spiritual or considered to have higher levels of religiosity. Individuals with an Extrinsic religious life orientation, "turn to God without turning from themselves", and is not necessarily as fully invested in religion as their Intrinsic orientation counterparts (Hills et. al., 2005). Extrinsic individuals use religion in the context of providing specific needs such as: security and solace, sociability and distraction, status and self-justification. This orientation was represented on the RLI with statements such as: "A primary reason for my interest in religion is that my church is a congenial social activity" and "One reason for my being a church member is that my church is a congenial social activity." For Quest individuals, their religion is an interactive way of finding meaning in their personal and social lives. They try to measure the intellectual rather than the doctrinal dimension of religion (Hills et al., 2005). individuals are inquisitive in regard to religion. Statements on the RLI such as "Questions are far more central to religious experience than are answers" and "For me doubting is an important part of what it means to be religious."

When Quest was included as a religious life orientation, it had a significant effect on higher schizotypal cognitions. When only Intrinsic and Extrinsic were used as religious life orientation, Extrinsic showed a significant effect on higher schizotypal cognitions. These findings do not support research that posits that higher levels of religiosity account for higher levels of schizotypal cognitions (Mohr, 2010). In fact, this study showed that higher levels of schizotypal cognitions were associated with low religiosity. These results show the opposite correlation of psychosis and religion seen in empirical studies such as the study conducted by Siddle et al. (2002) that showed that psychoticism was associated with higher levels of religiosity. A similar trend was found in studies conducted by Francis (1933) and Kay (1981) that established evidence that higher religiosity scores are associated with lower psychoticism in adults, adolescents, and children. The findings of the current study may also contribute to polemics in research that suggest that higher levels of religiosity exacerbate schizotypal cognitions in both individuals with schizophrenia as well as individuals who are religious in the normal population (Mohr, 2010).

Extrinsic Religious Orientation

The Extrinsic religious orientation was shown to have a significant correlation with higher schizotypal cognitions as both groups were compared, when the Quest religious orientation variable was excluded from the analysis. The Extrinsic religious orientation is considered to be the immature orientation as compared to its Intrinsic counterpart (Ryan, Rigby, and King, 1993). According to Allport (1950) the Intrinsic orientation is characterized by finding meaning and value in the religious experiences

whereas the Extrinsic orientation was characterized by a utilitarian approach, geared toward selfish and social gains. Flere and Lavrie (2008) cited studies that found an Extrinsic religious orientation to have a negative correlation to mental health. Albeit beyond the scope of this study, according to Flere and Lavrie (2008) studies have suggested that while the Intrinsic religious orientation should be viewed as a unified construct, the Extrinsic religious orientation should be viewed in the components of: Social Extrinsic orientation (Es), which centers on the individual's use of religion as a source of social benefits; while Personal Extrinsic orientation (Ep) places focus on the individual's use of religion as a means of help controlling and overcoming psychological troubles and distress. Although this study did not distinguish the Extrinsic religious orientation into subcategories. The subcategories mentioned by Flere and Lavrie have implications for how someone who scored higher on scales measuring schizotypal cognitions, who may or may not experience conflicts with their religious beliefs and schizotypal cognitions, would in some capacities use religion to help control and overcome psychological distress. Herein lies another implication for future study, in that the researcher may decide to use research tools that further dissect the Extrinsic religious orientation into the Es and Ep subcategories.

Quest Religious Orientation

As previously mentioned, the Quest religious orientation was later added to the dimension of religious orientations to introduce an orientation that was less characterized by dogmatic and doctrinal beliefs and more by a belief in spiritual development that involves questioning and doubting (Messay, Dixon, & Rye, 2012). Similar to the

Extrinsic religious orientation, since the original inclusion of the Quest religious orientation, researchers have found a way to categorize it into three main components: existentialism (queries about existence); self-criticism, and openness to change (Messay et al., 2012). This study found that when Quest was integrated as a separate variable in the study, its interaction was shown to have an even more robust statistical significance to schizotypal cognitions than did the Extrinsic religious orientation. Similar to the characteristics of Extrinsic orientation, some studies have suggested an association between Quest and distress. Specifically, studies suggest that the higher the questing tendencies, the greater the amount of anxiety and general distress (Messay et al., 2012). This may be to the individual's constant existential concerns, which are characteristic of the Quest religious orientation.

Other variables that have been shown to interact with the Quest religious orientation variable is mysticism. A study conducted by Francis, Village, and Powell (2017) found that higher levels of mystical orientation were associated with higher levels of Quest religious orientation. The interaction between individuals who are open to mystical experiences provides a bridge of insight into this study as one dimension of the RISC assessment used to assess the schizotypal cognitions ranges of participants is magical ideation, which has correlations to the concept of mysticism. Although it is beyond the scope of this study to suggest a correlation between schizotypal cognitions and mysticism within this study, it does provide a suggestion for future researcher, that a researcher use or develop a tool that focuses on the magical ideation dimension found

within schizotypal cognitions to discover if that dimension has a direct correlation to higher scores on the Quest religious orientation scale.

On the other hand, there is also research that suggests positive attributes of identifying with the Quest religious orientation such as: the ability to use complex moral reasoning and judgments and having more compassion and tolerance for those whose religious beliefs and practices may be different (lack of prejudice) (Messay et al., 2012). Individuals with a Quest religious orientation are more likely to have the capacity to consider different perspectives and incorporate a more contextual understanding of a situation. Unlike more rigid religious orientations, Quest offers a more inclusive perspective on religion and has been shown to be a source of universal compassion, this is directly related to its dimension of “openness to change”. This perspective of the Quest religious orientation has implications for social change, in that both groups including individuals with schizophrenia displayed a higher propensity toward the Quest religious orientation, despite elevations in schizotypal cognitions. This finding challenges many social stigmas that suggests that, particularly individuals with schizophrenia, lack the ability to use complex reasoning and judgment as it relates to distinguishing reality and having compassion for others.

In this study, it is also important to note that during the initial coding data, individuals who scored high on the Quest orientation scale of the RLI were also given a secondary code based on whether they scored higher on the Intrinsic or Extrinsic scale. This coding method was done primarily based on the fact that the RLI considered Intrinsic and Extrinsic religious orientation its primary dimensions. So, initially high

Quest scores were designated as either Intrinsic or Extrinsic, then in a separate ANOVA Quest was distinguished as its own variable. It was not anticipated that the Quest religious orientation would yield such a significant interaction with the schizotypal variable; nevertheless, the correlation between Quest and schizotypal cognitions is a correlation that warrants further investigation and is recommended for future research.

Theoretical Implications

The theories that grounded this study were the theory of aberrant-salience (Kapur, 2003) and the attribution theory-based on a Cognitive Model for Religious Delusions (Mohr, 2004). Both theories suggested that an individual who is both religious and has a diagnosis schizophrenia will most likely have an external attribution style. The Attribution Theory-based on a Cognitive Model for Religious Delusions (Mohr, 2004) makes the same assumption about religious individuals in the normal population. What is being suggested by both theories is that an individual who is religious will most like attribute psychotic stimuli to an outside source or religious figure. In terms of this study, the religious life orientation that best fits the description of an external attribution style would be the Intrinsic religious life orientation, as represented by statements such as "Quite often I have been keenly aware of the presence of God or the Divine Being." It should also be noted that although this study did not examine the physiological levels of how dopamine contributes to external attribution as suggested by the aberrant-salience theory, the intragroup trend of individuals with schizophrenia that identified as having an Intrinsic religious orientation scoring higher on schizotypal scales than their Extrinsic religious orientation counterparts, should be further investigated in future research,

definitely with a larger schizophrenia sample, and perhaps inclusive of an investigation of the varying dopamine levels of individuals who are Intrinsic versus Extrinsic with a diagnosis of schizophrenia.

However, as reflected in the findings of this study both individuals with schizophrenia and individuals in the normal population that scored higher on the schizotypal cognitions scale, identified most with an Extrinsic religious life orientation, which are considered more *superficial* in nature and much less internally stimulated than the Intrinsic religious life orientation. So, the findings in this study ironically suggest that individuals most prone to schizotypal cognitions are most likely not the individuals who are *internally* invested in religion in such a way that they are likely to attribute psychotic experiences to an interaction with God or a “Divine Being”.

Limitations and Recommendations

In this study, there were limitations Intrinsic to any correlational study such as even when finding a correlation between variable, causation cannot ultimately be assumed. However, the most prominent limitation of this study was procuring participants from the schizophrenia population. As previously mentioned, there were several sites that were recruited to participate in helping to give invitational information to individuals diagnosed with schizophrenia; however, only one site ultimately yielded participants with a diagnosis of schizophrenia. A recommendation for future studies is to ensure that a large population of individuals with a diagnosis of schizophrenia are interested in participating in the study before launching the study; as it was most challenging to recruit this population during this study. This may be done by securing

sites in advance who have a large number of individuals with schizophrenia who show interest in participating in the study. For future studies similar to this study, it is recommended that a larger sample of the schizophrenia population be used. Although this study's sample size of 130 participants was enough to yield significant results overall, challenges were seen in the analyses where the researcher wanted to see intragroup interactions of the religious life orientation and schizotypal cognitions variables.

Inherent within the diagnostic criteria of schizophrenia is the likelihood that some individuals may have delusional thoughts toward the researcher. This may be the case even when the individual is following a medication regiment and visiting a therapist regularly. Therefore, care and understanding must undergird all efforts to ensure that interactions with these individuals are as innocuous as possible. Interacting with individuals who may be leery to work with a researcher with whom they are not familiar may be a limitation for most researchers; however, this limitation is especially likely when interacting with individuals with schizophrenia. However, in most instances, participants from both groups were very interested in the study, as well as interested in being a participant in the study. Many participants also requested that they be made privy to the results of the study. Another limitation to the study was the capacity of some participants to understand some of the survey items. The researcher received clarification questions regarding both survey inventories, with assumptions that participants responded as honestly and effectively as they could. This limitation may be in correlation with the inherent limitation in this study pertaining to the highest level of education completed by its participants. 11.5 percent of participants did not finish High School; 6.9 percent had a

general education diploma; and 33.8 percent had a high school diploma. This factor contributed to the heterogeneous nature of the sample and has implications for generalizability; however, it does elicit questions about participant's abilities to conceptualize items on the surveys rendered in the study. This is of particular concern for individuals who were coded as "drop-out" who some cases did not complete high school.

Another limitation inherent within a study that uses self-report measures are vulnerabilities of limited conceptualization and operationalism; as well as issues of self-perceptions and conscious or subconscious fabrication. Subconscious fabrication was a limitation addressed within the construct of the RISC assessment, in the interpretation of the RISC assessment, Rust (1988) posited concern about individuals who scored on the extremely low range of schizotypal cognitions. He suggested that such individuals may be anxious about their own psychiatric well-being and may in some instances repress knowledge of schizotypal cognitions in a fear of "being found out" or as a defense mechanism. Interestingly, Rust (1988) also posits that It is also worth noting that where these very low scores are produced in combination with stereotyped responses, the knowledge necessary to produce scores as low as this does paradoxically imply a fair acquaintance with, or experience of, schizotypal symptomatology. Ironically, in this study, 22 of individuals from the control group scored on the extremely low range of the schizotypal cognitions scale; while 2.5 percent of the Experiment group scored in the extremely low range. Perhaps the fact that the control group were privy to the fact that they were being compared to individuals with schizophrenia ignited such anxiety described by Rust (1988) of being "found out". In future studies a correlation could be

made regarding the intragroup trends and factors that may contribute to extremely low scores of the RISC assessment involving similar group dynamics. Based on the findings of this study the correlation of religious life orientation and schizotypal cognitions should be further explored to address stigmas related to religiosity and mental illness.

Social Change and Application

This study produced several areas of implications for social change and application. Particularly important to be addressed was the social stigma associated with having a diagnosis of schizophrenia and subsequently having schizotypal cognitions. As seen in the average of extremely low scores on the RISC assessment, as posited by Rust (1988) this could have implications for an innate avoidance of being associated with having symptoms that may resemble those occupied by individuals with a schizophrenia diagnosis. When in reality, it is well researched and documented that schizotypal cognitions are seen within the normal population. The trend of schizotypal cognitions being found in the normal population was also an implication found in this study.

So perhaps instead of being subconscious about such occurrences, this study will ignite a consciousness toward being open and honest about those occurrences in an effort to build a bridge that distinguishes a common ground between individuals both with and without mental health diagnoses. Instead of hiding those occurrences, perhaps due to a fear of social stigmatism, so that individuals with mental health diagnoses do not feel alone in their experiences. When this awareness occurs perhaps similar future studies will have a more efficient distribution of reported instances of schizotypal cognitions, particularly in the normal population.

Despite the relatively small sample of individuals with schizophrenia that presented with a positive correlation between having an Intrinsic religious orientation and higher levels of schizotypal cognitions; religious life orientation was relatively evenly distributed in both groups (Chi-Square=.014, $p<.05$) and the overall study results did not suggest that the experimental groups had higher levels of religiosity (as seen in the Intrinsic religious life orientation) than the control group. Clearly more research is needed in the area of how religion correlates with personality; however, the results of this study suggests no statistically significant vulnerability for "clinical" levels of religiosity associated with individuals with a diagnosis of schizophrenia. In fact, the results of this study are suggestive of a positive correlation between the Quest religious orientation, which is characterized by openness to change and higher levels of existential reasoning, within the control group as well as the experiential group. This suggests that a Quest religious orientation is associated with higher levels of schizotypal cognitions even when a schizophrenia diagnosis variable is not present. The implications here are that Christians whether with or without a diagnosis of schizophrenia are not more vulnerable to higher levels of religiosity, merely because they have higher levels of schizotypal cognitions.

These findings have profound implications for the practitioners and clergy leaders of individuals in both groups. The implications here are that these individuals do not seem particularly vulnerable to having their religion exacerbate their symptoms as suggested by Mohr (2004). This also contributes to implications for social change in that it challenges stigmas that individuals with schizophrenia who are Christian are "fanatics"

with limited reasoning abilities. In regards to practitioners, the implications of the results of this study suggest that it is practical for individuals with schizophrenia to incorporate religion to help them cope with their diagnostic symptoms. In fact, this study shows that these individuals show a propensity toward using religion as a means of coping and understanding existentialism. Although specifics for this paradigm is beyond the scope of this study, herein are implications for future research.

In regards to religious leaders and clergy, the implications of the results of this study suggests an imposition of flexible teachings that allows individuals with schizophrenia to explore their religious beliefs in a non-dogmatic manner. This study presents that these individuals are capable of reasoning, and this propensity should be welcomed in a well-balanced religious paradigm. Specifics for this paradigm is beyond the scope of this study, but has implications for future research. Ultimately, this study suggests that higher levels of schizotypal cognitions are correlated with less rigidity in religious beliefs/practices, which challenges the generally held belief that schizotypal cognitions lead to elevated religiosity and vice versa. Ironically, this study suggests that essentially “lower” levels of religiosity are associated with higher levels of schizotypal cognitions. This finding definitely contributing to research in the area of religion and schizotypal cognitions; however, there is much more research that needs to be done in this area to fully develop this idea, and should be considered for future research.

Recommendations

Throughout this chapter there were several areas that were addressed that went beyond the scope of this study, but were implicated as possible research areas of future

research. This study's results showed that both Christian individuals with and without a diagnosis of schizophrenia scored higher on the schizotypal cognitions scale when they identified with the Quest religious orientation. However, a regression analysis of the intragroup interactions between the schizotypal and religious life orientation variables showed that within the experiment group, individuals who scored higher on the schizotypal cognitions scale, identified as having an Intrinsic religious life orientation. In this study, there were only forty participants who had a diagnosis of schizophrenia. For future research in this area, perhaps enlisting a larger sample of individuals with schizophrenia and examining the interactions between the two factors of schizotypal cognitions and Intrinsic religious life orientation may show statistical significance.

Similarly, within the control group, it was shown that individuals who identified as having an Extrinsic religious life orientation scored higher on the schizotypal cognitions scale. Since both groups showed different intragroup trends for how the religious life orientation variable interacts with the schizotypal cognitions scale variable, it may be worth further investigation as to what bearings, if any, a diagnosis of schizophrenia affects higher levels of schizotypal cognitions in the Intrinsic religious life orientation group. Perhaps one of the most significant implications for further study is this study's overall results which showed positive correlation between the Extrinsic and Quest religious orientation with higher levels of schizotypal cognitions. This is particularly significant because it challenges research that maintains that higher levels of religiosity are associated with higher levels of schizotypal cognitions. The Pearson Correlation analysis in this study also displays implications for further research based on

correlations between educational level and schizotypal cognitions range. Based on the findings of this study, there was a negative correlation between education level and schizotypal cognitions. Further analysis of this correlation is recommended for future study.

Conclusion

The practice of religion and psychology has had a layered history, beginning with religious beliefs and practices taking a central role in relieving psychological discomfort using religious practices such as Shamanism; and evolving into scientifically sound, evidence-based psychological practices. This study sought to examine the current interaction of religion and psychology as it relates to the effects of religion on individuals with a diagnosis of schizophrenia. The results of this study suggest that the religious beliefs/practices of individuals with schizophrenia did not differ from their non-schizophrenia counterparts. It was also shown that having an intrinsic religious orientation, or what may be considered religiosity, was not shown to be positively correlated with higher levels of schizotypal cognitions, in individuals with or without a diagnosis of schizophrenia, as some research has suggested.

In conclusion, the present study provides further evidence that the Quest religious orientation as well as the Extrinsic religious orientation is associated with higher levels of schizotypal cognitions. This study contributes to the development of knowledge and understanding as it relates to the religious beliefs/practices of individuals who may have mental health diagnoses and hopefully goes a step toward normalizing their experiences. Perhaps as individual's journey through life they will develop a hypersensitivity to the

nuances of the human experience and the unique challenges that each one has as they develop their own sense self-knowledge, self-discovery, and well-being.

References

Abi-Dargham, A., Rodenhiser, J., Printz, D., Zea-Ponce, Y., Gil, R., Kegeles, L. S., ... & Gorman, J. M. (2000). Increased baseline occupancy of D2 receptors by dopamine in schizophrenia. *Proceedings of the National Academy of Sciences*, *97*(14), 8104-8109.

Allport, G.W. (1950). *The individual and his religion.* New York: Macmillan.

Allport, G. W., & Ross, J.M. (1967). Personal religious orientation and prejudice. *Journal Of Personality And Social Psychology, 5(4),* 432-443.

Arnold, C. C. (1993). *Religiosity and delusional content among individuals with schizophrenia* (Order No. 1354585). Available from ProQuest Dissertations & Theses Full Text. (304098873). Retrieved from http://search.proquest.com/docview/304098873?accountid=14872

Batson, C.D., & Ventis, W.L.(1982). *The religious experience: A social psychological perspective.* New York, NY: Oxford University Press

Benjamin Jr, L. T. (2005). A history of clinical psychology as a profession in America (and a glimpse at its future). *Annu. Rev. Clin. Psychol.*, *1*, 1-30.

Carter, M., Kay, W. K., & Francis, L. J. (1996). Personality and attitude toward Christianity among committed adult Christians. *Personality and Individual Differences*, *20*(2), 265-266.

Chiu, S. N. (2000). Historical, religious, and medical perspectives of possession phenomenon. *Hong Kong Journal of Psychiatry*, *10*(1), 14-19.

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Thousand Oaks, CA: Sage.

Duarte, E. A. (2009). *General religiosity and use of religious coping as predictors of treatment gains for patients with schizophrenia and their relatives* (Order No. 3374327). Available from ProQuest Dissertations & Theses Full Text. (304925707). Retrieved from http://search.proquest.com/docview/304925707?accountid=14872

Ettinger, U., Williams, S. C., Meisenzahl, E. M., Möller, H. J., Kumari, V., & Koutsouleris, N. (2012). Association between brain structure and psychometric schizotypy in healthy individuals. *The World Journal of Biological Psychiatry*, *13*(7), 544-549.

Farrer, C., Franck, N., Frith, C. D., Decety, J., Georgieff, N., d'Amato, T., & Jeannerod, M. (2004). Neural correlates of action attribution in schizophrenia. *Psychiatry Research: Neuroimaging*, *131*(1), 31-44.

Farrer, C., & Frith, C. D. (2002). Experiencing oneself vs another person as being the cause of an action: the neural correlates of the experience of agency. *Neuroimage*, *15*(3), 596-603.

Feldman, J., & Rust, J. (1989). Religiosity, schizotypal thinking and schizophrenia. *Psychological Reports*, *65*(2), 587-593.

Flere, S., & Lavrie, M. (n.d). Is intrinsic religious orientation a culturally specific American Protestant concept? The fusion of intrinsic and extrinsic religious orientation among non-Protestants. *European Journal Of Social Psychology, 38(3), 521-530.*

Francis, L. J. (1993). Personality and religion among college students in the UK. *Personality and Individual Differences*, *14*(4), 619-622.

Francis, L.J., Village, A., & Powell, R. (2017). Quest-religious orientation among church leaders in Australia: A function of psychological predisposition or openness to mystical experience?. *Psychology Of Religion And Spirituality.* April 27, 2017

Frankfort-Nachmias, C., & Nachmias, D. (2008) *Research methods in the social sciences* (7th ed.). New York: Worth.

Garety, P. A., & Freeman, D. (1999). Cognitive approaches to delusions: a critical review of theories and evidence. *British journal of clinical psychology*, *38*(2), 113-154.

Hayward, R. (2004). Demonology, neurology, and medicine in Edwardian Britain. *Bulletin of the History of Medicine*, *78*(1), 37-58.

Howes, O. D., & Nour, M. M. (2016). Dopamine and the aberrant salience hypothesis of schizophrenia. *World Psychiatry*, *15*(1), 3-4.

Heinz, A., & Schlagenhauf, F. (2010). Dopaminergic dysfunction in schizophrenia: salience attribution revisited. *Schizophrenia bulletin*, *36*(3), 472-485.

Hills, P., Francis, L. J., & Robbins, M. (2005). Revised Religious Life Inventory. *Psyctests*.

Johns, L. C., & Van Os, J. (2001). The continuity of psychotic experiences in the general population. *Clinical psychology review*, *21*(8), 1125-1141.

Joseph, S., Smith, D., & Diduca, D. (2002). Religious orientation and its association with personality, schizotypal traits and manic-depressive experiences. *Mental Health, Religion & Culture*, *5*(1), 73-81.

Kapur, S., Mizrahi, R., & Li, M. (2005). From dopamine to salience to psychosis—linking biology, pharmacology and phenomenology of psychosis. *Schizophrenia research*, *79*(1), 59-68.

Kapur, S. (2003). Psychosis as a state of aberrant salience: A framework linking biology, phenomenology, and pharmacology in schizophrenia. *The American Journal of Psychiatry, 160*(1), 13-23.

Kelley, H. H., & Michela, J. L. (1980). Attribution theory and research. *Annual review of psychology*, *31*(1), 457-501.

Kiev, A. (1963). Beliefs and delusions of West Indian immigrants to London. *The British Journal of Psychiatry*, *109*(460), 356-363.

Luhrmann, T. M. (2012, Summer). Beyond the brain. *The Wilson Quarterly*, 28–34.

Madras, B. K. (2013). History of the discovery of the antipsychotic dopamine D2 receptor: a basis for the dopamine hypothesis of schizophrenia. *Journal Of The History Of The Neurosciences*, *22*(1), 62-78.

Maltby, J., Garner, I., Lewis, C. A., & Day, L. (2000). Religious orientation and schizotypal traits. *Personality and Individual Differences*, *28*(1), 143-151.

McClenon, J. (2012). A community survey of psychological symptoms: Evaluating evolutionary theories regarding shamanism and schizophrenia. *Mental Health, Religion & Culture*, *15*(8), 799-816.

McNally, R. J. (1999). EMDR and mesmerism: A comparative historical analysis. *Journal of Anxiety Disorders*, *13*(1), 225-236.

Messay, B., Dixon, L.J., & Rye, M.S. (2012). The relationship between Quest religious orientation, forgiveness, and mental health. *Mental Health, Religion & Culture, 15(3),* 315-333.

Modinos, G., Mechelli, A., Ormel, J., Groenewold, N. A., Aleman, A., & McGuire, P. K. (2010). Schizotypy and brain structure: a voxel-based morphometry study. *Psychological medicine*, *40*(09), 1423-1431.

Mohr, S., & Huguelet, P. (2004). The relationship between schizophrenia and religion and its implications for care. *Swiss Medical Weekly*, *134*, 369-376.

Mohr, S., Borras, L., Rieben, I., Betrisey, C., Gillieron, C., Brandt, P. Y., ... & Huguelet, P. (2010). Evolution of spirituality and religiousness in chronic schizophrenia or schizo-affective disorders: a 3-years follow-up study. *Social psychiatry and psychiatric epidemiology*, *45*(11), 1095-1103.

Moncrieff, J. (2009). A critique of the dopamine hypothesis of schizophrenia and psychosis. *Harvard Review Of Psychiatry (Taylor & Francis Ltd)*, *17*(3), 214-225.

Moore, R., & Lackritz, J. R. (2010). Intrinsic Religious Orientation: The Conservative Christian Connection. *International Journal For The Psychology of Religion, 20(3),* 201-218.

Morrison, A. P. (2001). The interpretation of intrusions in psychosis: an integrative cognitive approach to hallucinations and delusions. *Behavioral and Cognitive Psychotherapy*, *29*(03), 257-276.

Neugebauer, R. (1979). Medieval and early modern theories of mental illness. *Archives of General Psychiatry*, *36*(4), 477-483.

Ng, F. (2007). The interface between religion and psychosis. *Australasian Psychiatry*, *15*(1), 62-66.

Nour, M., Dahoun, T., Schwartenbeck, P., Adams, R., FitzGerald, T., Coello, C., ... & Howes, O. (2018). S154. The Role Of Dopamine In Processing The Meaningful Information Of Observations, And Implications For The Aberrant Salience Hypothesis Of Schizophrenia. *Schizophrenia Bulletin*, *44*(suppl_1), S385-S385.

Pfeifer, S. (1999). Demonic attributions in nondelusional disorders. *Psychopathology*, *32*(5), 252-259.

Polimeni, J., & Reiss, J. P. (2003). Evolutionary perspectives on schizophrenia. *The Canadian Journal of Psychiatry*, *48*(1), 34-39.

Polimeni, J., & Reiss, J. P. (2002). How shamanism and group selection may reveal the origins of schizophrenia. *Medical Hypotheses*, *58*(3), 244-248.

Puri, B. K., Lekh, S. K., Nijran, K. S., Bagary, M. S., & Richardson, A. J. (2001). SPECT neuroimaging in schizophrenia with religious delusions. *International Journal of Psychophysiology*, *40*(2), 143-148.

Roberts, C. M. (2010). *The dissertation journey: A practical and comprehensive guide to planning, writing, and defending your dissertation* (2nd ed.). Thousand Oaks, CA: Corwin.

Ross, C. J., & Francis, L. J. (2010). The relationship of intrinsic, extrinsic, and quest religious orientations to Jungian psychological type among churchgoers in England and Wales. *Mental Health, Religion & Culture, 13(7/8),* 805-819.

Rust, J. (1988). The Rust Inventory of Schizotypal Cognitions (RISC). *Schizophrenia Bulletin*, *14*(2), 317-322.

Ryan, R.M., Rigby, S., &King, K. (1993). Two types of religious internalization and their relations to religious orientations and mental health. *Journal Of Personality And Social Psychology, 65(3),* 586-596

Schmidt, K., & Roiser, J. P. (2009). Assessing the construct validity of aberrant salience. *Frontiers in behavioral neuroscience*, *3*, 58.

Shah,S., Kulhara,R., Grover,P., Kumar,S., Malhotra,S., Tyagi,S.(2011). Relationship between spirituality/religiousness and coping inpatients with residual schizophrenia. *Quality of Life Research: An Internal Journal of Quality of Life Aspects of Treatment, Care & Rehabilitation,* 20(7), 1053-1060

Shin, S. E., Lee, J. S., Kang, M. H., Kim, C. E., Bae, J. N., & Jung, G. (2005). Segmented volumes of cerebrum and cerebellum in first episode schizophrenia with auditory hallucinations. *Psychiatry Research: Neuroimaging*, *138*(1), 33-42.

Siddle, R., Haddock, G., Tarrier, N., & Faragher, E. B. (2002). Religious delusions in patients admitted to hospital with schizophrenia. *Social psychiatry and psychiatric epidemiology*, *37*(3), 130-138.

Siddle,B.E., Haddock,R., Tarrier,G., Faragher,N.(2002).The validation of a religiosity measure for individuals with schizophrenia. *Religion & Culture,* 5(3), 267-284

Silverman, J. (1967). Shamans and acute schizophrenia. *American anthropologist*, *69*(1), 21-31.

Slade, P. D., & Bentall, R. P. (1988). *Sensory deception: A scientific analysis of hallucination*. Johns Hopkins University Press.

Spanos, N. P., & Gottlieb, J. (1979). Demonic possession, mesmerism, and hysteria: A social psychological perspective on their historical interrelations. *Journal of abnormal psychology*, *88*(5), 527.

Spence, S. A., Brooks, D. J., Hirsch, S. R., Liddle, P. F., Meehan, J., & Grasby, P. M. (1997). A PET study of voluntary movement in schizophrenic patients experiencing passivity phenomena (delusions of alien control). *Brain*, *120*(11).

Taber, K. H., & Hurley, R. A. (2007). Neuroimaging in schizophrenia: misattributions and religious delusions. *The Journal of neuropsychiatry and clinical neurosciences*, *19*(1), iv-4.

Tateyama, M., Asai, M., Kamisada, M., Hashimoto, M., Bartels, M., & Heimann, H. (1993). Comparison of schizophrenic delusions between Japan and Germany. *Psychopathology*, *26*(3-4), 151-158.

Tse, K. J. (1999). *Differential diagnosis of schizophrenia, multiple personality disorder, and demonization* (Order No. 1397123). Available from ProQuest Dissertations & Theses Full Text. (304584781). Retrieved from http://search.proquest.com/docview/304584781?accountid=14872

White, J., Joseph, S., & Neil, A. (1995). Religiosity, psychoticism, and schizotypal traits. *Personality and Individual Differences*, *19*(6), 847-851.

Appendix A

Revised Religious Life Inventory

RLI-R

Items

I try hard to carry my religion over into all my other dealings in life.

Quite often I have been keenly aware of the presence of God or the Divine Being.

My religious beliefs are what lie behind my whole approach to life.

It is important to me to spend periods of time in private religious thought and meditation.

If not prevented by unavoidable circumstances, I attend church.

Religion is especially important to me because it answers many questions about the meaning of life.

I read literature about my faith or church.

It doesn't matter so much what I believe so long as I lead a moral life.

Although I believe in my religion, I feel there are many more important things in life.

The prayers I say when I am alone carry as much meaning and personal emotion as those said by me during services.

If I were to join a church group, I would prefer to join a Bible study group rather than a social fellowship.

I find religious doubts upsetting. (–)

A primary reason for my interest in religion is that my church is a congenial social activity.

One reason for my being a church member is that such membership helps to establish a person in the community.

I pray chiefly because I have been taught to pray.

The purpose of prayer is to secure a happy and peaceful life.

Occasionally I find it necessary to compromise my religious beliefs in order to protect my social and economic well-being.

Although I am a religious person, I refuse to let religious considerations influence my everyday affairs.

What religion offers me most is comfort when sorrows and misfortunes arise.

The primary purpose of prayer is to gain relief and protection.

The church is most important as a place to form good social relationships.

God wasn't very important to me until I began to ask questions about the meaning of life.

I am constantly questioning my religious beliefs.

There are many religious issues on which my views are still changing.

For me doubting is an important part of what it means to be religious.

My life experiences have led me to rethink my religious convictions.

It might be said that I value my religious doubts and uncertainties.

As I grow and change, I expect my religion also to grow and change.

I have been driven to ask religious questions out of a growing awareness of the tensions in my world and in my relation to the world.

I was not very interested in religion until I began to ask questions about the meaning of life.

Questions are far more central to religious experience than are answers.

I do not expect my religious convictions to change in the next few years. (–)

Appendix B

INSTRUCTIONS

Read each of these statements carefully and choose one of the four responses: Strongly Disagree (SD), Disagree (D), Agree (A) or Strongly Agree (SA). There are no 'right' or 'wrong' answers. You should decide which is the most accurate response for you. Make sure that the response you choose describes how you *actually* think, rather than how you feel you *ought* to think. When you are satisfied with the answer you have chosen, mark the letters which correspond to that response.
For example, if you strongly agree: SD D A SA

PLEASE RESPOND TO ALL THE STATEMENTS. If you are not completely sure which response is the most accurate, mark the one which you think is most likely. Do not spend too long on each statement.

ALL INFORMATION WILL BE TREATED IN THE STRICTEST CONFIDENCE.

	Statement	Strongly Disagree	Disagree	Agree	Strongly Agree
1.	Sometimes I feel I am ugly, and at other times that I am attractive.	SD	D	A	SA
2.	I have never embarrassed myself by expressing unreasonable jealousy.	SD	D	A	SA
3.	I consider no person or country to be my enemy.	SD	D	A	SA
4.	I sometimes tell people too much about myself and almost immediately regret it.	SD	D	A	SA
5.	I have never seen anything that looked like a ghost.	SD	D	A	SA
6.	Sometimes my thoughts seem so loud I can almost hear them.	SD	D	A	SA
7.	I am almost always consistent in what I say and believe.	SD	D	A	SA
8.	Most people are too stupid to realize which things in life are important.	SD	D	A	SA
9.	In pitch dark I never see any visual images.	SD	D	A	SA
10.	I have never 'come out in a cold sweat' upon realizing what I have told someone about myself.	SD	D	A	SA
11.	There are some people whom I trust completely.	SD	D	A	SA
12.	I have, on occasions, tried to reach the very essence of an object with my mind.	SD	D	A	SA
13.	When I try to help people they often misunderstand my motives.	SD	D	A	SA
14.	I have occasionally had to put my sudden sniffing of a smell down to imagination.	SD	D	A	SA
15.	I never use a lucky charm.	SD	D	A	SA
16.	Secret organizations have no real power or influence on our lives.	SD	D	A	SA
17.	I am sometimes unsure whether I have said something aloud or not.	SD	D	A	SA
18.	Sometimes I suspect that the real world is nothing like what it seems.	SD	D	A	SA
19.	I would not be in the least concerned if a person who believed in magic tried to put a spell on me.	SD	D	A	SA
20.	It has never occurred to me that the world may be a figment of my imagination.	SD	D	A	SA
21.	I am not a superstitious person.	SD	D	A	SA
22.	I don't really understand why I say some of the things I do.	SD	D	A	SA
23.	Sometimes I get a weird feeling that I am not really here.	SD	D	A	SA
24.	I have never suspected that people I am fond of may be secretly working against me.	SD	D	A	SA
25.	Sometimes people or objects seem to me to glow with an inner light.	SD	D	A	SA
26.	Things sometimes go so well for me that I suspect I may be receiving help from an outside agency.	SD	D	A	SA

Appendix C

Demographic Information Form

Participant's Gender____________ Participant's Age_____

Participant's Religious Orientation________________________________

Participant's Highest Level of Education Completed ______

Please Circle One: I have a diagnosis of schizophrenia

I do not have a diagnosis of schizophrenia

If you have a current diagnosis of schizophrenia, please circle the following that applies:

I am currently under the care of a psychotherapist

-Or-

I am NOT currently under the care of a psychotherapist

If you have a current diagnosis of schizophrenia, please also select one of the following:

I am currently taking psychotropic medication related to my schizophrenia diagnosis as prescribed

-Or-

I am NOT currently taking psychotropic medication related to my schizophrenia diagnosis as prescribed