RELIGIOUS BELIEF, SCHIZOTYPY AND ABNORMAL THINKING: THE INTER-RELATIONSHIPS

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ABSTRACT

This study examined the relationship between religious beliefs, schizotypy and abnormal thinking with a view to clarifying some of the discrepancies in the literature. There were 136 women and 57 men, from Massey University who took part in the study. The mean age was 22 years and respondents completed a demographic questionnaire and three questionnaires that measured religious beliefs (Maltby's 1999 Age-Universal I-E Scale), schizotypy (Claridge & Brok's STA schizotypy personality scale) and abnormal thinking (Morris and Johnson's CEQ scale). The results indicate that there is a relationship between the three constructs however this was not gender specific as anticipated or related to religious affiliation. Further research is recommended as religious beliefs can be an enormous part of some peoples' lives and this is an area that could be greatly influential in the therapeutic arena for individuals with either religious difficulties and/or psychological difficulties where religion may be presented as problematic.

CONTENTS

page

Acknowledgment ... ii

Abstract ... iii

INTRODUCTION ... 1

Religion and Religiosity ... 1

The development of religious belief ... 3

Dimensions of religious belief ... 6

Measurement of religious belief ... 8

Religious belief in psychology ... 11

Personality ... 13

Coping ... 14

Well-being ... 16

Schizotypy ... 18

Measurement of schizotypy ... 22

Religious belief and schizotypy ... 24

Gender ... 27

The present study ... 29

The hypotheses ... 35

METHOD ... 39

Participants ... 39

Measures ... 40

Procedure ... 44

RESULTS ... 46

Overview of data analysis ... 46

Descriptive statistics ... 46

Inferential statistics - hypothesis testing ... 47

DISCUSSION ... 55

REFERENCES ... 63

APPENDICES ... 68

Appendix 1: Information sheet ... 68

Appendix 2: Demographic survey ... 70

Appendix 3: Conscious ExperienceQuestionnaire ... 71

Appendix 4: Schizotypal Scale ... 77

Appendix 5: 'Age-Universal' Scale ... 81

Tables

Table 1: Demographic characteristics of study participants ... 39

Table 2: Mean and standard deviations for scales employed in this study ... 46

Table 3: Correlation matrix for the coefficients of the scales and subscales ... 48

Table 4: Comparison of male and female scores of the CEQ, STA and I-E ... 50

Table 5: One-way ANOVA: childhood and current religious denomination
and intrinsic-extrinsic religious belief ... ... .53

INTRODUCTION

Religion and Religiosity

Religion is a feature of human society that has created and permeated social structures throughout history. Although not as influential on all members of today's society, religion was at one time the most powerful voice for the people. The church spoke on all matters and made decisions for entire countries. Throughout the ages, and more so recently, there has been speculation about religion having some sort of relationship with personality and mental health. The recent tradition of relating personality and religion emerged from classical psychoanalysis in the early decades of the twentieth century.

The history of the relationship between religion and psychology has been characterised by conflict pertaining to the role of religion in an individual's psychological and emotional well-being. Whether religion contributes to or hinders psychological health. A look at the differing views on this subject will be a good starting point in attempting to understand the discrepancies in the literature concerning the relationship between religious beliefs and psychological functioning.

From Freud's early writings on the topic came blunt statements of the comparability of religion to childhood neurosis that saw religious people as embracing an "infantile prototype", and suggested an existing "analogy between

religion and obsessional neurosis" (Freud, 1927, p.40) in the religious individual's perceived relationship to an all-powerful God: "...Religion would thus be the universal obsessional neurosis of humanity; like the obsessional neurosis of children, it arose out of the Oedipus complex, out of the relation to the father" (Freud, 1927, p.39).

Notions of individuals being credulous and "dependent, submissive, self-abasing and intellectually impoverished" (Tennison & Snyder, 1968, p. 188) while under the influence of religion were extended by authors such as Ellis (1980): "Religiosity is in many respects equivalent to irrational thinking and emotional disturbance...The elegant therapeutic solution of emotional problems is to be quite unreligious...the less religious they are, the more emotionally healthy they will be" (pg. 637).

The possibility that religious features may adversely affect the mental well-being of its followers is an idea that has been widely studied in the last three decades (e.g.: Field & Wilkerson, 1973; Bergin, 1980; Maltby, Garner, Lewis & Day, 2000; Peters, Day, McKenna & Orbach, 1999). The doctrines of religious beliefs are not always beneficial - in some instances they can create stress and influence psychological balance. It is believed this can happen when people deal with religious doctrines in a rigid and inflexible manner.

Not all the literature suggests religion is negative and deleterious though, with some authors finding positive associations between religion and religious beliefs,

personality and well-being. Crawford, Handal & Wiener (1989) found that highly religious participants were significantly less distressed and manifested better psychological adjustment than medium and low religious participants. There is evidence that higher religious scores are associated with lower psychoticism scores in adults (Francis, 1992; Kay, 1981) as well as in children and adolescents (Francis, 1992; Francis & Pearson, 1985). Certainly in healthcare settings, religious and spiritual beliefs can contribute to an understanding of illness or disability by providing patients with a system of meaning and existential understanding (Daaleman, 1999).

The discussion of the relationship of religion, psychology and psychopathology is further developed in later sections of this introduction. However, prior to that, several aspects of religious belief will be examined.

The development of religious belief

There has been some discussion of the relative contribution of 'nature' versus 'nurture' to religiousness. On the nurture side lies the possibility that socialisation is the predominant form of shaping a relationship with religion. Behaviourism saw social scientists attributing the inclination towards religiosity as coming from our socialisation experiences as children. Bandura's social learning theory (Bandura, 1977) which emphasises modeling and imitation as shaping our behaviour has been influential in this regard.

Elkind (1970) has suggested that we are "naturally" religious and religiousness is the result of a "religious instinct". Some theorists have argued further that there are some aspects of religiosity that could be inherited. The possibilities of an unconscious need to 'hunt' for and find a deity (Jung, 1938) and using religion to satisfy cognitive needs that emerge out of the course of mental growth (Elkind, 1970) appear seen to be supported by Bouchard, Lykken, McGue, Segal and Tellegen (1990) who found that religiosity, like other psychological characteristics, has strong heredity components while family environment tends not to have a strong influence on children's religious development.

Along with the most recent trend towards biological evolution research, there seems to be a more complex and intricate theory of religious development being linked to evolution ideas. Simonton (1999) adheres to the belief that "In the face of self and mortality awareness, the driving creative behaviour is to engage in what is broadly considered a religious search to find some meaning in individual existence and some continuity beyond death" (p. 363).

Sociobiologists suggest that religion may play a part in allowing people an understanding their world and maintain that religion has a biological basis that, in terms of evolution, religion's natural substructure has always been socially expressed which have aided humanity in its struggle for survival. Wilson (1978), who founded sociobiology, believes that "if the brain evolved by natural selection....religious beliefs must have arisen by the same mechanistic process" (p. 2) and these beliefs are the "enabling mechanisms for survival" (1978, p. 3).

This process is thought to happen due to religion enhancing altruism, with people putting their own interests aside for the interests of the group. Batson (1983) in support of this concept, adds that the imagery of religion, such as being the "Children of God" contributes to this feeling of 'oneness'.

While this controversy is ongoing and the ideas have sparked new and exciting empirical studies investigating the development of religious behaviour, no single conclusion has been forthcoming. It is thought that further synthesis of this work could eventually lead to a more complete theory of the development of religion in childhood (Hood, Spilka, Hunsberger & Gorsuch, 1996). The most definitive thing that can be said is that religion, the study of religion, and the interactions it has with other correlates are multidimensional.

It appears that the key issue is not whether someone has religious beliefs or not, as many members of the religious community are happy and well-adjusted individuals. What is more pertinent is how their religious beliefs influence their lives - whether they display signs of *'religiosity'* or not. Religiosity has been described as a "... morbid concern for religion, a concern which upon investigation reveals a basic disturbance in personality" (Field & Wilkerson, 1973, p. 100). It has been found that when the approach to religion is in a severe and dysfunctional form, the effect on mental health can be profound (Ventis, 1995). How does the development of religiosity take place? Why are some people more susceptible to religiosity than others?

To try and resolve the debate concerning religion and the role it plays in psychological health and well-being many theorists have followed a main trend of trying to develop a personality and attitude profile of the "religious" individual. This is predominantly done by separating religious belief into "good" and "bad" religiousness.

Dimensions of religious belief

In the early part of the twentieth century, James (1902, cited in James, 1958) referred to the religion of "healthy-mindedness" versus the "sick soul" although he did not necessarily judge one as better than the other. This was one of the first multidimensional approaches to the study of an individual's religious belief. Since then, there have been many different authors attempting to describe what can generally be classified into "good" and "bad" religiousness. Here are some examples:

- Fromm (1950) made the distinction between *humanistic* versus *authoritarian* religious belief where the former is a type of religion centred around the virtue of self-realisation, the latter, authoritarian religious belief refers to obedience and centred around sin and was thus comparable to religiosity.
- Allen and Spilka (1967) separated religiosity into *committed* (religious ideas are clear and flexible) versus *consensual* (religious ideas are vague and personally convenient). From this was derived Stifoss-Hanssen's (1994) version of the *rigid-flexible* concept of religiosity.

- Batson and Ventis (1982) made the distinction between *means* religion (religion is a means to other self-serving ends) versus *end* religion (religion is an ultimate end in itself).
- Allport (1966) described *intrinsic* versus *extrinsic* religiosity. These dimensions are somewhat comparable to the distinction between internal and external control (Phares, 1976), where intrinsic religion refers to faith being an absolute value in its own right and extrinsic religion is using religion for gain or social standing. This is a widely used distinction in the quest for the profile of the healthy religious individual compared to the individual who displays a more unhealthy religious outlook, which, at the extreme end, defines religiosity.

It is generally accepted that when an individual develops an *intrinsic* orientation towards religion, they 'live' their religious beliefs. Their belief and faith is entrenched in their whole being as an individual, it makes up what they are and how they see the world. Some characteristics of people high in intrinsic religiosity are unselfish, devout, high self-actualisation, feelings of power and competence (Hood et al, 1996). People high in intrinsic religiosity tend to "live" their faith and intrinsic religious orientation has been found to have a significant association with better psychological well-being (Bergin, Masters & Richards, 1987; Maltby et al, 2000).

In contrast, persons who demonstrate an *extrinsic* orientation to religion have been described as using religion to provide "...security and solace, sociability and

distraction, status and self-justification" (Allport & Ross, 1967, p. 434). The individual that uses religion to these ends finds it to be a source of external reward in some way. Some find it rewarding to be a participant in a powerful in-group (Genia & Shaw, 1991), while others use it to gain a feeling of protection, consolation and social status (Allport & Ross, 1967). Stifoss-Hanssen (1994) showed that rigid religiosity can even be associated with severely neurotic thinking and behaviour. It is this type of religious belief that is thought to be detrimental to an individuals mental health (Ventis, 1995; Maltby et al, 2000).

Findings like those mentioned have prompted further investigation into the intrinsic-extrinsic dichotomy, with the realisation that aspects of religion could have real effects on psychological factors like well-being, coping and self-esteem.

Measurement of religious beliefs

An early way of categorising religion was a simple denominational division such as Protestant, Catholic, or Jewish (Larson, Pattison, Blazer, Omran & Kaplan, 1986). Denomination is currently considered a weak and ineffective measure of religious domain as it ignores the divergent range of religious styles and practices within such broad categories (Harrison & Lazerwitz, 1984).

The accurate measurement of religious orientation has been the subject of rigorous psychometric investigation for over thirty years. Currently, most researchers prefer the use of more dynamic measures (Gorsuch, 1984) which assess religious

beliefs by asking questions that recognise that religion "is not a single measure of practices, beliefs, or attitudes but a construct of multiple and interactive variables" (Larson et al, 1986, p. 331) and asking questions about cognitive, motivational, and behavioural patterns in order to ascertain an individual's religious inspiration. The scale measuring intrinsic and extrinsic religiosity is an example of one such scale.

The investigation of intrinsic-extrinsic dimensions of religious belief was initiated by Allport (1966) who developed a theory of intrinsic-extrinsic religious motivation and a consequent scale to measure religiosity called the Religious Orientation Scale (ROS) (Allport and Ross, 1967). Allport's theory centres around different motivations for being religious which in turn have different implications for mental health. Donahue (1985) conducted a meta-analysis on studies that have utilised the theory and the ROS. At the time of Donahue's article, there were 70 published studies that had used the ROS, which made it one of the most frequently used measures of religiousness. Donahue's meta-analysis showed the research generally supported Allport's theory, that people with intrinsic religious beliefs demonstrate greater psychological health than people with extrinsic religious beliefs.

Donahue (1985) summarised his findings by stating "Intrinsic religiousness serves as an excellent measure of religious commitment..." (p. 415) and it's "lack of doctrinal content and open-ended definition of religion makes it usable with virtually any Christian denomination, and perhaps even with non-Christian

religions" (p. 415). Donahue's view on extrinsic religiousness was that it "does a good job of measuring the sort of religion that gives religion a bad name. It is positively correlated with prejudice, dogmatism, trait anxiety, and fear of death" (p. 416).

Since the ROS's conception, several authors have made changes to improve its psychometric properties. These include item changes, changes in response format, and scoring methods (King & Hunt, 1969). In 1983, Gorsuch and Venable produced a more refined measure of intrinsic/extrinsic religious belief called the *'Age-Universal' I-E Scale.* This questionnaire divided the extrinsic orientation towards religion into two separate factors: extrinsic-social and extrinsic-personal, while the measurement of intrinsic orientation was left largely unchanged. The newest scale that is based upon the ROS (1967), which also has the extrinsic-social and extrinsic-personal scales, is a 12-item 'Age-Universal' version which has been adapted by Maltby (1999). This is found to have good psychometric qualities in a large study of people from different cultures. This scale uses twelve of the same items as the Gorsuch and Venable (1983) but has taken out three items from the fifteen as the items were thought to be vague and easily misunderstood, and the removal of these items has been found to increase the universality of the measure (Maltby et al, 2000).

Religious beliefs in Psychology

As already mentioned, the extent that religion is seen as a positive or negative influence on psychological functioning has varied over time. At times it has been seen as a positive force, for example when it allows people to deal with times of stress. At other times, religion has been accused of aiding individuals in their development of certain mental illnesses, particularly schizophrenia, probably because many sufferers experience religious delusions, and both auditory and visual hallucinations containing religious content (Goldwert, 1993). Hood et al (1996) made the statement "Intimations of abnormality and psychopathology have plagued the relationship between religion and psychology in the contemporary world" (p. 407).

The idea of religion and psychological problems being involved in some sort of dysfunctional relationship has been maintained through the use of references about religion and mental illness in psychological texts. Even the DSM III (American Psychiatric Association, 1987) includes a disproportional number of statements that made reference to religious thoughts and behaviour as dysfunctional (Larson et al, 1993). These authors noted it was very surprising that given the low number of studies assessing religion in the psychiatric research literature, "the rates of references to religion in both the case examples (22.2%) and the reminders of clinical relevance (28.6%)....are surprisingly high" with "...the frequent association of religion with psychopathology" (Larson et al, 1993, p.1885). This situation, however, does seem to be slowly changing, as the latest edition of the

DSM (IV) recognises religiousness and spiritual difficulties as a distinct mental disorder deserving treatment with a category label of 'Religious or Spiritual Problem' - V62.89 (American Psychiatric Association, 1994, p. 685).

Certainly, the proverbial "chicken or the egg" question exists - does religiosity cause some degree of mental illness or does mental illness have some sort of impact on the development of the rigid and more unhealthy religiosity? Spilka and Werme (1971) suggested several ways that religion and psychological problems might be interrelated. They suggested that religion may be a means of expressing emotional disorder; a haven from stress; a source of stress; a means of social acceptance (and conformity); or a means of growth and fulfillment. Thus, according to Spilka and Werme (1971) there are no specific reasons for the relationship between religion and psychological dysfunction. The relationship is complex and may be linked with other factors also.

General personality factors, particularly coping abilities and well-being are interrelated with psychological functioning and profoundly affect the development of dysfunctional religiosity, particularly troublesome aspects of religiosity such as unusual or distorted thoughts and perceptions. A discussion on personality and its effects on religiosity will follow and succeeding that will be an investigation into unusual thoughts, under the heading of 'Schizotypy' later in the chapter.

Personality

Personality has been the topic most frequently investigated by psychologists and sociologists interested in religion, reflecting an assumption that they are closely related, or that religious beliefs have powerful effects on one's character. In personality structure, religiousness functions as one among many attitudes, or predispositions to respond in certain ways to the environment. As such, a person's religion can diverge as to whether it is: significant or insignificant; applied or dormant; good or bad; beneficial or damaging to their adjustment.

Religion used to be seen as a dependent variable that was caused by or at least connected with stable psychological factors. Therefore, to embrace religious influences and their doctrinal, conceptual composition, assumed a psychologically ready foundation in which religion took root (Bergin, 1980). Now, however, religion is viewed as an independent variable that can have direct effects on actual behaviour, moral judgment, religious knowledge, prejudice and coping styles that then impact individual and social integration (Allport & Ross, 1967; Crawford et al, 1989).

An individual's personality and fundamental disposition, along with the methods used to deal with life issues, are crucial in this area. There are reasons why someone develops a very rigid belief in religion. Although in part this may originate from early childhood socialisation, from religiously over-zealous parents or significant others, it may also become embedded in the characteristics that

make up the personality attributes of an individual. This would make it seem probable that the person who scores high on a measure of rigid religiosity may also have other areas in their lives that are rigid, fixed and one might expect that they would be narrow-minded.

There was prolific research in the 1970's and 1980's within the area of personality and religion, reflecting the general interest in personality at the time. The studies of interest from this time showed people who scored higher on intrinsic religiousness also scored highly on measures of internal locus of control (Kahoe, 1974; Strickland & Shaffer, 1971; Morris & Hood, 1981) and purpose in life (Crandall & Rasmussen, 1975). Extrinsic religious individuals scored highly on measures of prejudiced attitudes and dogmatism (Polautzian, Jackson & Crandall, 1978; Thompson, 1974), fear of death (Bolt, 1977; Patrick, 1979), perceived powerlessness (Minton & Spilka, 1976, cited in Donahue, 1985), and trait anxiety (Baker & Gorsuch, 1982).

Coping

An individual's ability to cope with life's demanding stressors is a personality trait that impacts on all areas in life and will influence whether somebody accesses religion for intrinsic rather than extrinsic reasons. Questions most asked about the relationship between coping and religion centre around what religion does for a person and how religion operates in times of stress, caused by loss, threat or

challenge (Hood et al, 1996) Does religion help a person make sense of a confusing situation?

Some have argued that religion contributes by providing meaning. An early statement made by Argyle (1959) that "a major mechanism behind religious beliefs is a purely cognitive desire to understand" (p. 147) still appears valid. Religion and the meanings it gives to life satisfy this need to understand and help people cope with life's problems, such as pain and suffering. Sometimes the answers that religion gives may be the only way to make sense of misfortune, as "without meaning a person is severely handicapped in coping with many of life's problems" (Hood et al, 1996, p.380).

Bjorck and Cohen (1993) conclude that for intrinsically religious people "religious coping represents a normative and adaptive coping strategy" (p. 67). Religion offers many people answers and suggestions when times of crisis strike which may be the reason that many people can turn to religion while incarcerated or when faced with a terminal illness (Peters et al, 1999). This may also be why a large number of those diagnosed with a mental illness turn to religion as it can offer a sense of belonging for a minority group along with answers to the meaning of significant events and may also help to normalise some delusions.

Well-being

Jones (1993) noted that "extensive studies have found the presence of religious beliefs and attitudes to be the best predictors of life satisfaction and sense of well-being" (p. 2). Hood et al (1996) more specifically concluded that on the whole, a "solid intrinsic religious commitment and favourable images of God are positively associated with self-esteem and good life adjustment" (p. 385). Extrinsic religious motivation, on the other hand, leads to lower self-esteem and poorer life adjustment (Van Uden & Pieper, 1996).

The association of intrinsic religion with personal happiness goes beyond traditional religions and extends to faith in general. Studies using large numbers of participants from many countries showed a positive association between being religious and having faith in a divine presence and feelings of well-being (e.g., Myers, 1992).

The psychological well-being of an intrinsically motivated religious individual is intricately involved in a positive cycle of good mental health. In dealing with both everyday and also catastrophic details of life, it appears the intrinsically religious individual will have the skills *as part of who they are*, with the accompanying wisdom and sense of *knowing who they are* and the knowledge that their faith will ensure their life works out in the best way *for them*.

The extrinsically motivated religious person on the other hand, may struggle with the concept of events happening for the greater good, as so many of these individuals use religion for their own personal gain. This may, in turn, lead to a feeling of unfairness with life and general unhappiness which can lead to a negative cycle with accompanying low self-esteem and a feeling of injustice when there are no immediate solutions to their questions (Burkette & White, 1974). Unhealthy relationships between personality variables and religious beliefs will be contemplated within the syndrome of 'schizotypy'.

Of course, there are times that individuals utilise religion as a means of dealing and coping, even though it may be in an extrinsic manner, for brief periods during times of stress this is considered a healthy and even normal way of coping with trauma or crisis situations (Peters et al, 1999).

Schizotypy

Schizotypy is a concept that was formulated by Rado (1953, cited in Hood et al, 1996) and further elaborated by Meehl (1990) to represent an hypothesised genetic inclination towards schizophrenia. The construct of schizotypy or 'psychosis-proneness' (Claridge, 1994) suggests that some behaviours and thoughts lie around the middle mark of a continuum "which ranges from healthy functioning, through eccentricity, to florid psychosis" (Peters et al, 1999, p. 83).

The schizotypic individual may be labeled by others as 'odd' or 'eccentric', or somewhat reclusive, due predominantly to an inability to manage any form of close relationship with others. The thinking patterns of a person with schizotypy may be distorted and include beliefs that are considered outside the 'norm' - possibly an attribution of everyday events to irrational paranormal phenomena.

The DSMIV (APA, 1994), lists the diagnostic criteria for Schizotypal Personality Disorder as the following: Ideas of reference (i.e., incorrect interpretations of causal incidents); Superstitiousness or preoccupation with paranormal phenomena that are outside the norms of the subculture (special powers, magical control over others); Perceptual alterations may be present; Odd thinking and speech; Individuals are often suspicious and may have paranoid ideation; Inappropriate or constricted affect; Behaviour or appearance that is odd, eccentric, or peculiar;

Few or no close friends or confidants; Anxiety in social situations, particularly those involving unfamiliar people.

Schizotypy has been considered to be a predisposing factor to schizophrenia (Stifoss-Hanssen, 1994). It has been found that individuals who score medium-high on schizotypy scales can share various psychophysiological, neuropsychological, cognitive and phenomenological characteristics with people diagnosed with schizophrenia (Jackson, 1997). This may be particularly relevant in the present context as rigidly held belief systems and religious ideation are commonly found amongst individuals with schizophrenia. This is investigated within the 'Religiosity and Schizotypy' section further on in the chapter.

It is important to bear in mind that when schizotypy lends itself to schizophrenia and schizotypal thoughts are psychotic or pathological, this can be a serious illness. However, this is most often not the case. Indeed, the majority of cases of schizotypy do not involve serious psychopathology (Claridge, 1996). Even when the behaviour of the person with schizotypy is unusual or odd or when the phenomena the individual may experience include out-of-the-body experiences or premonition, they are generally not harmful to themselves or others (Peters et al, 1999). These are the notions that gave rise to the idea of the 'happy schizotype' (McCreery, 1996) and 'benign schizotypy' (Jackson, 1997) which is the utilisation of spiritual experiences that may be beneficial and healthy for the individual (Peters et al, 1999).

Jackson (1997) reveals that in Western cultures, phenomena that he refers to as 'spiritual experiences', are relatively common. These experiences are termed 'psychedelic', 'psychic', 'religious' by researchers and they all refer to an altered state of consciousness. Jackson observes that "...the nature of the relationship between benign spiritual experience and florid psychotic episodes presents us with an intriguing paradox" (p. 228). Additionally, the cultural components of religious and schizotypal phenomena are important to bear in mind, as similar mental and behavioural states may be classified as psychiatric disorders in some cultural settings, and religious experiences in others (Bhugra, 1996). Some experiences judged 'psychotic' by Western standards are actually highly revered in other cultures.

Therefore, for some individuals the paranormal and mystical world is viewed as functional and healthy and can even be considered adaptive. It has been reported that it may serve the function of resolving crises such as bereavement (Batson & Ventis, 1982). However, for other individuals, particularly those with a diagnosis of schizophrenia or other mental illness, it is thought of as being maladaptive and dysfunctional.

Jackson (1997) lists the key positive features of schizotypy to be "magical ideation, perceptual aberration, and paranoid ideation" (p. 240) and confined within measurement parameters of which the definition is in "terms of how they depart from accurate, 'normal' reality testing" (Jackson, 1997, p. 240). Magical ideation and thought distortion are features of schizotypy and are displayed more

prominently in schizophrenic individuals (Thalbourne, 1994; Thalbourne & French, 1995; Tobacyk & Wilkinson, 1990). There is also evidence that stronger beliefs in paranormal phenomena are associated with higher scores on schizophrenia-relevant measures in the 'normal' population (Eckblad & Chapman, 1983; Fujioka & Chapman, 1984; George & Neufeld, 1988; Thalbourne, 1994; Thalbourne & French, 1995).

Morris and Johnson (in prep.) have added that "The relevance [of the key positive features] to psychotic-spectrum disorders is attested by the inclusion of magical or supernatural thinking items in many of the [schizotypy] measurement instruments". Therefore, while sometimes studied separately, there is an inextricable link between abnormal conscious experiences, unusual thoughts and schizotypy.

Clearly, given the symptoms of schizotypy, there may be many undiagnosed people with schizotypy. By virtue of the nature of the syndrome, individuals that have the symptoms may avoid becoming involved in close relationships so no-one can observe something unusual or different about the person's behaviour. As will be discussed later, religion may become a safe haven for individuals with symptoms of schizotypy, who may seek solace in the ideas of religion with it's miracles, superstition and paranormal flavour.

Measurement of Schizotypy

The psychometric measurement of the concept of schizotypy is made possible by measuring the positive symptoms of the disorder (cognitive and perceptual aspects). Attempts to measure schizotypy by questionnaire have been made for many years (Golden & Meehl, 1979) however, recently there has been an increase in the amount of self-rating scales being developed. This is due to the need to diagnose the disorder satisfactorily and accurately because of the predisposing nature schizotypy has to schizophrenia.

There are now a number of instruments that measure the symptoms of schizotypy including the related unusual or distorted thoughts. Questionnaires which measure schizotypy often have subscales that question real versus imaginary perceptions, the paranormal, divergent perceptions and beliefs (e.g.: Claridge & Broks, 1984). These beliefs and perceptions correspond to the aforementioned positive symptomatology of schizophrenia, as represented in cognitive and perceptual aspects of schizotypy (Claridge, 1996).

Morris and Johnson (in prep.) have reported on the development of a scale that is based on a process-model of symptom formation arising from faults within the meta-cognitive systems of an individual. These defects can lead to psychotic-spectrum disorders. Of particular interest here is the experimental study of the

role of the process of intentionality in conditions such as schizophrenia and schizotypy (e.g.: Frith & Done, 1989, cited in Morris & Johnson, in prep.).

Intentionality describes authentic and genuine experiences that are conscious and purposeful. The theory behind the idea of intentionality is based on the idea that some normal experiences are deliberate acts while others are passive and automated. On the other hand, there are some abnormal experiences that are not authentic and these come into two categories also. One is called an intentionalisation error and this occurs when intentionality is ascribed to non-intentional behaviour, which can occur in mind control experiences such as grandiosity delusions. The other is called a passivity error, where intentionality is absent and there are passivity (or control) delusions.

What is the most important element concerning the schizotypal individual is whether they develop in a psychologically healthy or unhealthy manner. In the following section the relationship between religion and schizotypy will be considered and will provide some evaluations as to what sort of role religion can play, be it helpful or harmful to the schizotypal individual.

The relationship between religious belief and schizotypy

"Habitual idea systems, ways of thinking, and cognitive schemata are significant factors in the etiology and treatment of anxious and depressive disorders....and schizophrenic disorders" (Feldman and Rust, 1989, p. 591). When intrusive schizotypal thoughts increase, it is thought they may become entrenched in a rigidly held belief system, which can impair cognitive functioning: "many of the positive symptoms associated with acute schizophrenia and schizotypal personality disorder, such as delusions and hallucinations, are often reflected in religious form" (Feldman & Rust, 1989, p. 587).

When the belief structure of a person is rigid and fixed, and this is accompanied by rigid religious ideas, then the presence of unusual thoughts and magical ideation often in the form of religious symbols or delusions are more likely (Field & Wilkerson, 1973). The relationships between religiosity and schizotypy have proven difficult to capture, and findings are often contradictory. However, while the validity of any causal hypothesis is yet to be firmly established, there is an increasing consensus that there are relationships between the two.

Martin & Nichols (1962) provided a report of nearly a dozen studies of the 1950s that showed the religious believer as being "emotionally distressed, conforming, rigid, prejudiced, unintelligent, and defensive" (Bergin, 1983, p. 172). Rokeach

(1960) reported a similar profile and concluded that believers, compared to non-believers, were more tense, anxious, and symptomatic. Believers were classified as emotional 'misfits'. Since the 1950's, religion has gradually attained a more positive, although troubled status, and empirical results have correspondingly been less negative.

Wulff (1991) suggested that people with schizophrenia may be attracted to religious practices and imagery, employing them to attempt to cope with overwhelming sensory stimulation or delusional fears. Thus, according to Wulff, religion may act as a guard against schizophrenia by allowing people with schizophrenia to use religion to make sense of the world (Maltby et al, 2000). Some research has tested this theory and reported findings indicating that religious experience does indeed act to protect against schizotypy, confirming Wulff's theory (Jackson, 1997). Some other studies have also reported highly religious participants have less psychological problems than medium and low religious participants (Crawford et al, 1989; Daaleman, 1999) with Stark (1971) finding religion to have a very positive effect on those they studied.

In contrast, White et al (1995) reported higher scores on the Francis Scale of Attitude toward Christianity (FSAC, Francis & Stubbs, 1987) were positively correlated with scores on Claridge's measure of Schizophrenia Borderline Personality Traits (Claridge & Broks, 1984). The notion that religiosity can be thought of within the concept of schizotypy has been supported by Feldman & Rust (1989); Stifoss-Hanssen (1994); White et al (1995); and Diduca and Joseph

(1997). Empirical support for the view that "psychoticism is a dimension of personality fundamental to religiosity" (Francis, 1992, p. 645) has been noted by several authors (e.g., White et al, 1995).

To further cloud the picture, other studies have found no clear association between religiosity and schizotypy/schizophrenia (Diduca & Joseph, 1997; Caird, 1987; Bergin, Stinchfield, Gaskin, Masters & Sullivan, 1988; Argyle & Beit-Hallahmi, 1975). Bergin (1983), in possibly the most comprehensive meta-analysis in the field, identified 24 pertinent studies in the field. This report identified mixed findings: 23% of the studies he reviewed showed a negative relationship between religion and mental health, 47% had a positive relationship, and 30% had a zero relationship. Given the enormous discrepancies in the research, Strommen's (1972) observation that religion attracts, reduces, increases and heals mental disorders still seems to be one of the most accurate comments available in the literature and summarises the complicated relationships between the two constructs.

Some have attributed these contradictory findings to measurement difficulties (Crawford et al, 1989) which will be explored further on in the chapter. It seems fair to say that there is generally a complex series of both environmental and genetic factors that can lead a person to develop a) an unhealthy religious stance, b) schizotypy, and c) a dysfunctional relationship between the two. A variable that has been studied and thought important in determining whether an individual develops a healthy or unhealthy style of coping or well-being, is gender.

Gender

Gender has been shown to be related to measures of religiousness and schizotypy to the extent that some authors say the relationship between religiosity and schizotypal traits is gender specific (Maltby et al, 2000). Numerous studies that have found varying degrees of gender effect. Jensen et al (1993) found religious women scored higher on measures of positive mental health; Francis (1992) also found that scores on the Francis Scale of Attitudes towards Christianity (FASC) are sex-related - female respondents record a more positive attitude towards religion than male subjects. Another study reported females that were highly religious were less distressed and better adjusted psychologically than males in the same category who showed no significant relationship between the subjects degree of religiosity and mental health/distress (Crawford et al, 1989).

It seems that there is a common trend for women to show more a more healthy, functioning relationship with religion. This could be related to the fact that women score higher on intrinsic measures of Intrinsic-Extrinsic scales than men. Donahue, (1985) found several such results in his answer to the question of whether women are more religious than men and in what way. Argyle and Beit-Hallahmi (1975) referred to this very question as the "most important of the statistical comparisons" (p. 71) that they had made.

Within the schizotypy realm, Thalbourne (1994) found males scored higher on the MMPI schizophrenia scale used in his study; White et al (1995) reported

correlations between belief in the paranormal and schizotypy traits were higher for men than for women. A study using both Junior and Adult Psychoticism scales for the Eysenck Personality Questionnaire found both scales are strongly gender-related with males recording higher scores than females (Francis, 1992).

So, while there are gender differences reported by the cited studies and others, the same inconsistency is noted here also. What is lacking are studies that examine gender differences in relation to both religion and schizotypy. It would be informative to discover if there are in fact any significant gender trends and what specific religious personality traits these are related to. Is the rigidly religious individual displaying more distorted thoughts because religion is helping to encourage and foster literal translations of certain 'sexist' quotations from the teachings of religion. Also, while most studies find that religious women are better psychologically adjusted than men, is this because they display intrinsic motivation towards religion and have less stress and/or greater coping skills or is it because religion helps them to make sense of their lives? What exactly are the qualities that make women different from men in this regard?

The present study

This study examines the relationships between religiosity, schizotypy and distorted thoughts, with a primary belief being that extrinsic forms of religious orientation are more attractive to certain individuals. The theory behind this hypothesis centres around what religion may offer an individual who may be experiencing some/all of the features that are trademarks of schizotypy, including the delusional content caused by defects in meta-cognition systems, namely intentionality.

Wulff's (1991) comment that individuals with schizophrenia are possibly more attracted to religious practices and imagery because they help them to cope with onerous sensory stimulation or delusional fears, is certainly a worthy beginning point for developing the ideas of the present theory. The person encountering certain types of cognitive impairment (whether it is in that individual's awareness or not) will, according to the theory proposed in this paper, will be drawn to religion, and for these reasons, will develop an extrinsic religious orientation.

Firstly, the Schizotypal Personality Disorder as per prescription for diagnosis from the DSMIV (1994) checklist of symptoms will be examined in relation to religion. Secondly, it is intended to point out why meta-cognitive defects in relation to intention-action systems would also point somebody in the direction of not only schizotypy but extrinsic belief in religion also.

The criteria and explanations in terms of religious belief will follow:

Ideas of reference: Religion contains much imagery. The bible, which is what most Christian religions are centred around, is based on imagery and metaphors. Certainly drinking the "blood of Christ" and eating the "body of Christ" are examples of such ideas. To someone with schizotypal ideation therefore, religion may be a way to attempt to normalise some of the distorted thinking they are experiencing.

Superstitiousness or preoccupation with paranormal phenomena: The idea of heaven in hell is really the ultimate form of superstitiousness - as the concept is basically concerned with what happens after death, there are no accurate accounts of a true heaven or hell situation. Therefore, the superstition surrounding sinning, and the consequences of sinning can be enormous, particularly with somebody who is having superstitious ideation. Paranormal phenomena is also another avenue for the church to instill in it's congregation - the 'voice of God' and the idea that people are somewhat in touch with the 'other side' are encouraged in many religions. The individual with schizotypal traits may feel comforted by this acceptance and even reverence of what may have been a troublesome aspect of the disorder.

Perceptual alterations: Once again, religion offers a sense of supernatural or magical events that are made to sound commonplace. Reality can sometimes be distorted which for the majority of us poses no problems and we are able to differentiate reality from perceptual alterations. For some, however, this could be

very confusing and may serve to lead to quite distorted thinking, which could explain why many people who suffer from schizophrenia and psychotic-symptom disorders experience religious delusions (Goldwert, 1993).

Odd thinking and speech: Religion may prove to be comforting for an individual experiencing odd thinking and speech. Largely due to religious notions of acceptance and caring for thy neighbour, even if the odd speech was noticed by other members of the religious community, the individual with schizotypal would be most likely met with sympathy. For some well-meaning members of the congregation, an individual with schizotypal traits may even be seen as a 'work in progress'. This happens a great deal in the psychiatric community, people being kind to others who are 'different' from themselves.

Suspicious with paranoid ideation: Within the religious imagery often discussed is the notion of an ever-watchful "eye of God". To somebody experiencing schizotypal thoughts this could lead to even more paranoia as it is an excepted part of most religions that God is omnipotent. To someone who is not obviously paranoid, it may sow the seeds for the ideas of suspiciousness, feeling 'watched' and monitored.

Inappropriate or constricted affect: Many people, when asked the reasons why they belong to a religious group or attend church services, will probably include in their answer statements about acceptance and a sense of belonging. However, how much of the 'true self' of that person comes through in the hour of the church

service or the religious groups that they may belong to? Are they really likely to be known by others in any other way than the way they want to be seen (particularly if they are using religion for extrinsic motives). So too, the individual with schizotypal traits, who may possibly thrive on the sense of belonging and acceptance but can limit the opportunities for others to see any differences in affect, inappropriate, constricted or otherwise by limiting the time spent or activities involved in.

Odd or eccentric behaviour or appearance: Because members of most forms of Christian religions are not of a certain prototype, then a person who has an unusual appearance or unusual behaviour would be condemned as much as if, say, they were in a certain type of employment that demanded a certain standard. Therefore, the eccentric person could feel, possibly for the first time in their lives, that they belong, particularly as they may feel that they are free from the judgment of others.

Few close friends or confidants: Religion often offers a certain amount of anonymity to followers. Particularly a church setting, which, it is postulated, will be the main reason many individuals with schizotypal traits will develop an extrinsic form of religious belief. Church attendance and being a part of a congregation offers a sense of belonging without the need to show eccentricities and therefore risk not forming close relationships with others.

Anxiety in social situations: Predominantly due to the point made above concerning anonymity, a church meeting could allow a person who experiences anxiety in social situations to feel part of a group but in a non-threatening manner. Social situations can be difficult for many people and for someone who is dealing with unusual or distorted thinking, they would be panic-provoking. However, this could be alleviated in the mind of someone that has schizotypal traits, not only because many religions proclaim themselves to be very open to everyone, from all walks of life, but also because it is a social situation....it allows one to experience a social outing without the necessity of communication of any form.

Therefore, it is the premise that religion certainly does have a lot to offer an individual suffering from all or even just one of the above personality traits that are thought to make up a schizotypal human being. One of the questions earlier in this introduction asked "does religion help a person make sense of a confusing situation?" and the answer was that it is can be healthy and adaptive in times of stress, such as terminal illness. However, what could be more stressful that experiencing some of the above criteria? Religion may be like a beacon for some, a place of solace and acceptance, which, if we remember, are actually characteristics of why people develop extrinsic religious belief.

This leads to the discussion about the intention-action systems described by Morris and Johnson (in prep.). The theory of intentionality is linked to both schizotypy and religiosity. An individual experiencing schizotypal delusions is likely to be at risk of making the two errors described above, their odd thoughts

and behaviours are likely to be unintentional and involuntary. Morris and Johnson explain that "...the scheme provides a process-based approach to predicting abnormal experiences associated with major disorders and has permitted the experimental study of the role of the processes in conditions such as schizophrenia" (in prep.).

As such, it would be expected that individuals scoring highly on scales measuring schizotypy (bearing in mind the components proposed by Jackson (1997) to be indicative of schizotypy are "magical ideation, perceptual aberration, and paranoid ideation") would also score highly on the subscales of Morris and Johnson's CEQ subscales that measure intentionality errors. For the intentionalisation error: 'Mind Control' and 'Referential Thinking', and for the passivity error: 'Passivity Phenomena' and 'Mind-blindness'. In turn, these will be related to religious thinking... much of schizotypal thoughts and also what the CEQ is attempting to measure are all related to a 'higher being' and a belief in something else other than what is visible and logical.

The hypotheses

The first hypothesis is the over-arching central hypothesis which expects to find a significant and positive relationship between *extrinsic religiosity, schizotypy* and *thought distortion*. Maltby et al (2000) investigated a similar question looking at the relationship between religious beliefs and schizotypal traits, using the same religious measure ('Age-Universal' I-E Scale (Maltby, 1999)) and the same schizotypy measure (Schizotypy Personality Traits (Claridge & Broks, 1984)) that is used in the present study. Maltby et al (2000) found an intrinsic orientation towards religion had a significant negative correlation with schizotypal traits, while extrinsic orientation toward religion had a significant positive relationship with schizotypal traits. This relationship was found to be gender specific which is to be investigated within the second hypothesis.

There are several sub-hypotheses in relation to the main one above. One concerns the specific relationship between schizotypal traits and the CEQ subscales investigating intentionality. It is expected that there will be a significant relationship between these variables due to the nature of the constructs, that they are measuring similar ideas. It is expected that there will be a significant and positive relationship between the overall scores of abnormal thinking and schizotypy. Thalbourne (1994) in support of this found people who have high scores on psychosis-proneness scales also tend to ascribe certain events to magical causes.

Related to this will be that people who score highly on intentionality will also score highly on magical ideation as measured by the subscale of Claridge and Brok's Schizotypy scale (STA-MI), and unusual perceptual experiences (STA-PE). Thus, there will be a significant and positive correlation between intentionality, as measured by the relevant CEQ subscales (referential thinking; mind-blindness; mind control and passivity phenomena), magical ideation and unusual perceptual experiences..

Another sub-hypothesis concerns the differences between the extrinsic religiosity scales. It is expected that individuals with schizotypal thoughts, high scorers on all three subscales of the STA (measuring schizotypy), will have a stronger relationship with extrinsic-social religiosity because it is that form of religious belief that is believed to be attractive to individuals seeking comfort and acceptance within a religion.

The second hypothesis is concerned with *gender* and the effects that gender has on *schizotypy* and *abnormal thinking*. It is expected that gender will have an impact on both schizotypy and abnormal thinking with males having a significant, positive and stronger correlation with schizotypy and abnormal thinking than females. The literature on schizotypy and the effects that gender has, generally sways towards males scoring higher than females on measures of psychosis-proneness and also schizophrenia (Thalbourne, 1994; Francis, 1992). Thalbourne (1994) found that males showed higher positive correlations with measures of

magical ideation, psychic phenomena, and particularly high correlations on the Schizophrenia scale used in his study (MMPI, Hathaway & McKinley, 1983).

The third hypothesis looks at *gender* and *religious belief.* It is hypothesised that women will have a positive and significant relationship with intrinsic religious belief and that men will have a significant positive relationship with extrinsic religious belief. The literature available reports similar findings, the most notable being that of Maltby et al (2000). Women generally scored higher than men on intrinsic scores of religiosity. White et al (1995) found a significant association between religiosity and unusual perceptual experiences (as measured by Claridge & Brok's 1984 Schizotypy scale (STA)) and a trend towards an association between religiosity and magical ideation, however this was specific to men. This is consistent with findings by Diduca and Joseph (1997) who found men had higher religious preoccupation scores with correspondingly high magical ideation scores, though an effect in this case was not found in women. Other studies finding gender effect similar to Maltby et al (2000) are Crawford et al (1989) and Jensen et al (1993)

The specific relationship between *paranormal beliefs* and *schizotypy* will be examined as the fourth hypothesis. It is expected that paranormal beliefs will be significantly and positively related to the schizotypal traits as measured by the magical ideation and unusual perceptual experiences subscales of the STA. In accordance with Peters et al, 1999 and Morris & Johnson (in prep.), paranormal phenomena is thought to be associated with higher scores on schizophrenia-

relevant measures in the 'normal' population (White et al, 1995; Eckblad & Chapman, 1983; Fujioka & Chapman, 1984; George & Neufeld, 1987; Thalbourne, 1994; Thalbourne & French. 1995). Paranormal beliefs will be considered in relation to schizotypy using subscales of Morris and Johnson's CEQ questionnaire: powerful forces and referential thinking.

Another area of interest is the question of *religious denomination*. Does current and childhood denomination affect the degree of religiosity experience? It is expected that religious denomination will impact on whether someone is either intrinsically or extrinsically religious. This is not expected to be a correlation of large magnitude but it is expected to be significant due to the nature of certain kinds of religious experience, with some religions being more rigid than others which is expected to lead to extrinsic religiosity.

METHOD

Participants

There were 193 respondents who completed the questionnaires, ranging in age from 18 to 54 years. The demographic characteristics of the sample are presented in Table 1.

Table 1:

Demographic Characteristics of Study Participants

N = 193	Total	Percentage
Gender (*n* = 193)		
Males	57	29.5%
Females	136	70.5%
Mean age (*n* = 193)	22 years	
Ethnicity (*n* = 191)		
NZ European	158	81%
Maori	19	9.8%
Non-NZ European	6	3.1%
Other	8	4.2%
Religious Affiliation (*n*=178)		
Atheist	41	21.2%
Agnostic	26	13.5%
Christian	91	47.2%
Other	20	10.4%
Childhood Religion (*n*=193)		
Atheist	31	16.1%
Agnostic	3	1.6%
Christian	147	76.2%
Other	12	6.2%
Church Attendance (*n*=192)		
Weekly	21	10.9%
Monthly	11	5.7%
Special	141	73.1%
Never	19	9.8%

Measures

The measures consisted of a set of Demographic questions (Appendix 2) and three standardised questionnaires. The questionnaires employed in this study were Morris and Johnson's Conscious Experience Questionnaire (CEQ) (Appendix 3); Claridge and Brok's (1984) STQ Scale (Appendix 4); and Maltby's (1999) Age Universal I-E Scale (Appendix 5).

Demographic Questionnaire

Questions asking participants their age, gender, religious denomination (if applicable), their childhood religious denomination, ethnic affiliation and frequency of church attendance.

Morris and Johnson's Conscious Experience Questionnaire (CEQ)

The relevance of distorted thoughts and magical ideation on both religious thinking and schizotypy has been discussed and the CEQ was selected because it assesses distorted thoughts and magical ideation. Distorted thoughts include a "belief, quasi-belief, or semi-serious entertainment of the possibility that events which, according to the causal concepts of this culture, cannot have a causal relationship with each other, might somehow, nevertheless do so" (Meehl, 1964, unpublished document, cited in Eckblad & Chapman, 1983, p. 215).

The CEQ scale attempts to capture: "... defects in meta-cognition within the sensory perceptual system... the intention-action system ...and systems which produce the sense of causation or agency in relation to events and occurrences other than human

actions" (Morris & Johnson, unpublished document, p. 1). These are thought to be influential in the formation of psychotic and psychotic-like symptoms and thus crucial to this research.

The CEQ is a scale which assesses cognitive states by making comparisons between ideal and real-life circumstances. This scale consists of 46 items that are divided into 10 sub-scales:

Feelings of unreality (5 items)
Imagined seems real (5 items)
Mind control (5 items)
Referential thinking (5 items)
Powerful forces (5 items)
Passivity phenomena (5 items)
Somatic control (5 items)
Mindblindness (4 items)
Chance beliefs (5 items)
Deja vu (2 items)

Items are answered in a five point Likert-type Scale format, ranging from 'Never' to 'Always'.

Morris and Johnson found the test-retest reliability of an earlier version of the CEQ to be reasonable ($r = .83$), with the only difference between this version and the current version being an extra three items in the former. The 46 items CEQ had a Cronbach's alpha of .93 showing robust internal consistency. The relevant psychometric properties of the CEQ scale have also been investigated by How (1999) who found the test re-test correlations of the subscales ranging from .58 to .83 ($p<0.01$) and internal reliability (alpha) for the CEQ sub-scales ranging from .78 to .91 ($p<0.05$). In addition, Morris and Johnson (in prep.) reported a correlation

between the CEQ and Raine's SPQ (Raine, 1991) which is a measure of schizotypy, of .65, and the CEQ with the STA (Claridge & Broks, 1984) to be .74.

Claridge and Brok's (1984) STQ Scale which consists of Schizotypy Personality Measures (STA) which is the questionnaire employed here. Modeled on the DSM III criteria for schizotypal and borderline disorders, this scale is the most commonly used in the assessment of schizotypal traits (Claridge et al, 1996).

Though the STA can be administered as a scale on its own, the present research is based on the recommendations of Hewitt and Claridge (1989) of yielding three subscale scores:

Magical Ideation (STA-MI)

Paranoid Ideation and Suspiciousness (STA-PI)

Unusual Perceptual Experiences (STA-PE).

Jackson and Claridge (1991) examined the questions of test-retest reliability and criterion validity (of identifying clinically psychosis-prone individuals) of the STQ using a 'normal' and a 'clinical' population base. They found "the results...add further evidence establishing the STQ as a useful instrument for measuring psychotic traits in normal subjects" (p. 321). Maltby (2000) reports satisfactory levels of internal reliability of the three subscales in his study employing the STA scale (Magical ideation, α = .83; Paranoid Ideation and Suspiciousness, α = .86; Unusual Perceptual Experiences, α = .84).

The *'Age-Universal Intrinsic-Extrinsic Scale - 12'* was the instrument chosen to assess religious and spiritual beliefs. The distinction between an intrinsic and an extrinsic orientation towards religion is thought to be useful in research in the psychology of religious attitude and behaviour (Gorsuch, 1988; Kirkpatrick & Hood, 1990).

The Age-Universal scale is amended scale from Gorsuch and Venable's (1983) scale which in turn is based heavily upon an extremely widely used Religious Orientation Scale (ROS, Allport & Ross, 1967). Developed by Allport and Ross, the ROS differentiates successfully those individuals who use religion as a means (Extrinsic) and those who view it as an end (Intrinsic) (Bergin, Masters and Richards, 1987).

Donahue (1985) provided a comprehensive meta-analysis of the research that employed the ROS and concluded that the Intrinsic-Extrinsic framework is a useful implement in the assessment of religiousness. These are the foundations that Gorsuch and Venable (1983) and Maltby (1999) used to devise their scales, finding, as did Donahue (1985) in his results of nearly 70 studies that people with intrinsic religious belief generally show greater psychological health than extrinsic religious individuals.

The 'Age-Universal' Scale - 12 is generally used as a 12-item scale, however the 15-item version of the scale (using the questions developed by Gorsuch and Venable, 1983) was used. This was due to the use of a student sample and the

unnecessary need for universality variables to be taken into consideration as the sample was predominantly homogenous.

There are three sub-scales within the questionnaire:

Intrinsic orientation towards religion (9 items)

Extrinsic-personal orientation towards religion (3 items)

Extrinsic social orientation towards religion (3 items)

The 'Age-Universal' Scale is a self-administered measure using a five-point Likert-type scale, with responses ranging from 'Never' to 'Always'.

Maltby (2000) reported satisfactory levels of internal reliability using Cronbach's alpha (intrinsic orientation toward religion, α = .91; extrinsic-personal orientation toward religion, α = .69; extrinsic-social orientation toward religion, α = .72).

Procedure

This study was reviewed and approved by the Massey University Human Ethics Committee prior to commencement.

The researcher attended various lectures and tutorials at Massey University and informed students of the nature of the study. Information sheets (see Appendix 1) and questionnaires were provided to those students interested in participating. Participation involved completing the questionnaires and returning them to the researcher via mail. The estimated time taken to complete all three questionnaires and the demographic questions was 15-20 minutes. Participants were aware that

there was no remuneration for their participation in the study. After completion of the questionnaires, respondent's answers were entered into a database using SPSS statistical package. Descriptive and inferential statistics were performed using SPSS for Windows (Version 9.0, 1999).

RESULTS

Overview of Data Analysis

All analyses were performed using SPSS PC/Windows version 9.0 (1999). Following the descriptive statistics for the scales and subscales used to test the hypotheses, assumptions were checked for bivariate data analysis and simple correlations were investigated in order to ascertain any associations between the variables.

Descriptive Statistics

Table two shows the means and standard deviations for scales and subscales to be investigated within this study.

Table 2:

Means and Standard Deviations for Scales Employed in this Study

Scale/subscale	**N**	**Mean**	**Std Deviation**
Schizotypal Personality Total (STA total)	193	13.0	7.0
STA (Unusual Perceptual Experiences)	193	6.2	3.8
STA (Paranoid Ideation)	193	3.9	2.5
STA (Magical Ideation)	193	2.8	1.7
Conscious Experience Questionnaire (CEQ total)	193	50.8	17.3
CEQ (Passivity Phenomena)	193	5.9	2.8
CEQ (Mind Blindness)	193	6.4	2.1
CEQ (Mind Control)	193	3.0	3.0
CEQ (Referential Thinking)	193	2.6	2.4
CEQ (Powerful Forces)	193	4.8	3.7
Age-Universal Intrinsic-Extrinsic Scale-12 (total)	189	17.7	12.3
Extrinsic Personal Subscale of the I-E Scale	189	4.3	3.4
Extrinsic Social Subscale of the I-E Scale	189	1.1	2.0
Intrinsic Subscale of the I-E Scale	189	12.3	8.3

Inferential Statistics

Hypothesis 1: Extrinsic religious belief, schizotypy and abnormal thinking

The relationships between extrinsic religious belief, schizotypy and unusual cognitive experiences were examined in a correlational analysis. Table 3 displays the results of this analysis. Correlations show a trend of significant inter-correlations between subscales of the STA, the CEQ and the I-E Scale-12.

Schizotypy and unusual cognitive experiences as measured by the CEQ have a significant and strong correlation with each other ($r = .70$, $p = .001$), indicating that these measures are closely related. Schizotypy and abnormal thinking were both significantly related to the extrinsic-personal measure of the religiousness scale ($r = .31$, $p = .001$ and $r = .32$, $p = .001$ respectively) suggesting that an increase in both of these variables is associated with an increase in religiousness of an extrinsic-personal nature. However, the extrinsic-social measure was uncorrelated with schizotypy and had a small but significant relationship with abnormal thinking.

Table 3
Correlation Matrix for the Coefficients of the Scales and Subscales of the Schizotypy, Distorted Thoughts and Religious Variables

	STA (total)	STA-PE	STA-PI	STA-MI	CEQ (total)	CEQ (pass.ph)	CEQ (mind.bl)	CEQ (mind.co)	CEQ (ref.think)	CEQ (pow.for)	I-E (total)	I-E (ext-per)	I-E (ext-soc)	I-E (intrinsic)
STA (total)	1.00													
STA-PE	.93**	1.00												
STA-PI	.83**	.61**	1.00											
STA-MI	.80**	.64**	.53**	1.00										
CEQ (total)	.70**	.64**	.62**	.50**	1.00									
CEQ (pass.ph)	.54**	.50**	.52**	.33**	.78**	1.00								
CEQ (mind.bl)	.33**	.28**	.39**	.17*	.59**	.51**	1.00							
CEQ (mind.co)	.56**	.49**	.46**	.50**	.70**	.44**	.34**	1.00						
CEQ (ref.think)	.52**	.45**	.52**	.35**	.71**	.48**	.34**	.57**	1.00					
CEQ (pow.for)	.48**	.41**	.38**	.46**	.60**	.33**	.24**	.46**	.44**	1.00				
I-E (total)	.28**	.18**	.20**	.35**	.28**	.08	.16*	.23**	.28**	.58**	1.00			
I-E (ext-per)	.31**	.23**	.22**	.40**	.32**	.11	.15*	.30**	.26**	.56**	.89**	1.00		
I-E (ext-soc)	.10	.08	.10	.07	.17*	.05	.13	.08	.21**	.35**	.58**	.41**	1.00	
I-E (intrinsic)	.23**	.15*	.18*	.34**	.24**	.07	.15*	.20**	.25**	.54**	.97**	.80**	.45**	1.00

* Significant at .05 level ** Significant at .01 level

Taking into consideration the sizable correlation between thought distortion and schizotypy, the correlations between intrinsic and extrinsic-personal religious belief were each examined with the other variable controlled for. When schizotypy (STA) was partialled out, there was still a weak but significant relationship between extrinsic-personal religious beliefs and distorted thoughts ($r = .14$; $p = .05$), however, when CEQ was controlled for, the correlation between STA and I-E (extrinsic-personal) was non-significant ($r = .09$, n/s).

Therefore the hypothesis was partially supported with extrinsic-personal religiosity having a significant and positive relationship with both schizotypy and distorted thoughts. Extrinsic-social religiosity had a small association with distorted thoughts and a non-significant relationship with schizotypy. The correlation found between intrinsic religious belief and schizotypy and distorted thoughts was slightly lower than those found between extrinsic-personal but was still positive and significant.

Schizotypal traits and CEQ intentionality

As predicted, the schizotypy trait scores were all significantly correlated with the intentionality subscale scores. The highest correlations were found between unusual perceptual experiences and passivity phenomena ($r = .50$, $p = .001$); paranoid ideation and passivity phenomena ($r = .52$, $p = .001$); paranoid ideation and referential thinking ($r = .52$, $p = .001$) and magical ideation and mind control ($r = .50$, $p = .001$). Mind Blindness shared a small but significant relationship with magical ideation ($r = .17$, $p = .05$).

Extrinsic-social religiousness and schizotypy

The correlations of the subscales of the three subscale measures of schizotypy were not significant in relation to extrinsic-social forms of religious belief (Unusual Perceptual Experiences, r = .08, n/s; Paranoid Ideation, r = .10, n/s; Magical Ideation, r = .07, n/s).

Hypothesis 2: Gender, schizotypy and abnormal thinking

Gender comparisons relating to scores on STA, CEQ and the I-E total scores as well as the subscales: intrinsic, extrinsic-personal and extrinsic-social were tested with independent samples t-tests. Table 4 shows the t-value for the Equality of Means, degrees of freedom and significance levels.

Table 4:
Comparison of Male and Female Scores of CEQ, STA, I-E (including subscales)

Scale/ group	N	Mean	S.D.	t	d.f.	sig.
STA (total)						
Male	56	11.2	7.1			
Female	133	13.8	6.9	-2.38	187	.02
CEQ (total)						
Male	56	51.1	18.9			
Female	133	50.9	16.9	.10	187	.92
I-E (total)						
Male	56	18.6	12.3			
Female	133	17.4	12.3	.63	187	.53
I-E (intrinsic)						
Male	56	12.0	8.4			
Female	133	12.3	8.4	.74	187	.46
I-E (ext-per)						
Male	56	4.1	3.3			
Female	133	4.4	3.4	-.53	187	.60
I-E (ext-soc)						
Male	56	1.5	2.3			
Female	133	0.9	1.9	1.67	187	.10

Hypothesis 3: Gender and religious belief

No scores on the scales and subscales of religiosity have gender effects ($p>.05$) which leads to an acceptance of the null hypothesis for gender effects on religiosity and distorted thoughts.

Hypothesis 4: Paranormal beliefs and schizotypy

When the relationship between schizotypy was measured in conjunction with the two CEQ scores of 'referential thinking' and 'powerful forces' used to ascertain paranormal belief, simple correlations between the three variables show schizotypy is related to both variables.

There was a positive and significant relationship between schizotypy and referential thinking ($r = .52$, $p = .001$) and schizotypy and powerful forces ($r = .48$, $p = .001$). Referential thinking and powerful forces are also significantly correlated ($r = .44$, $p = .001$). Also significant were the correlations between these CEQ subscales and all religious subscales, with very high correlations between powerful forces and the total score of religious beliefs (I-E total) ($r = .58$, $p = .001$); extrinsic-personal ($r = .56$, $p = .001$); extrinsic-social ($r = .35$, $p = .001$) and intrinsic religious beliefs ($r = .54$, $p = .001$).

Religious denomination

A one-way Anova investigating the notion of variance in current and childhood religious denomination was conducted. Groups for both current and childhood religious beliefs were divided into "athiest", "agnostic", "christian" and "other". All F values were found

to be significant for both childhood religious denominations and current religious denominations (Table 5). This indicates the population means are probably not equal.

However, the Levene's statistics performed on both current religion and childhood religion and the data show all variables to be significant except for the extrinsic-personal measure of religiosity ($p>.05$) indicating that the population variances for this group is approximately equal and therefore, this result will be excluded from the post-hoc analysis.

In order to locate where the differences lie, a post-hoc analysis in the form of a 'Tukey's honestly significant difference' was performed. It was found that there were significantly different ($p<.05$) means within intrinsic religious belief between the following populations: athiest and christian, athiest and 'other', agnostic and christian, and, agnostic and 'other'. The difference between athiest and christian beliefs were found to be significant when it comes to extrinsic-social religiousness.

Table 5:

One-way Anova:

Childhood and Current Religious Denomination and Intrinsic-Extrinsic Religious Belief

Current religion		Mean Square	D.F.	F	Significance
Intrinsic	Between groups	1504.58	3	32.80	.000
	Within groups	45.87	171		
Extrinsic-personal	Between groups	232.77	3	30.41	.000
	Within groups	7.66	171		
Extrinsic-social	Between groups	28.04	3	7.02	.000
	Between groups	3.99	171		
Childhood Religion					
Intrinsic	Between groups	886.12	2	14.77	.000
	Within groups	60.02	176		
Extrinsic-personal	Between groups	139.73	2	14.00	.000
	Within groups	9.98	176		
Extrinsic-social	Between groups	15.65	2	3.79	.025
	Within groups	4.13	176		

Therefore, it can be concluded that religious denomination does have an impact on whether somebody has an extrinsic-social or intrinsic view of religiousness however, this is limited to the distinctions above.

The post hoc analysis for childhood religious denomination indicates that for intrinsic, extrinsic-personal and extrinsic-social religious orientation it is the difference between athiest and christian religious denomination in childhood that is significant in explaining the variance.

DISCUSSION

The intention of this study was to find out if certain psychological variables are correlated with the way an individual expresses religious belief and to examine differential relationships between religion and abnormal thoughts as a function of gender. Overall, it was found that the interaction between the variables reflected some of the expectations of the study.

It was theorised that extrinsic rather than intrinsic religious belief would have substantial relationships with unusual thoughts, particularly intentionality. Magical ideation, unusual perceptual experiences, paranoid ideation and paranormal phenomena were also variables that were expected to be correlated with different forms of religious belief. Another expectation was that women would score differently to men on the measures, with men having higher scores on the schizotypy scale (STA) and the abnormal thinking scale (CEQ), and women displaying more intrinsic rather than extrinsic religious attitudes. The effect that both childhood and current religious denomination had on an individuals' experience of intrinsic or extrinsic religious belief were also examined.

Religious beliefs, when examined independently, were found to have sizable relationships with each other, particularly between extrinsic-personal and intrinsic religious beliefs, less so with the extrinsic-social form of religious belief. The reasons why extrinsic-social belief had this surprising result may be due to the questions in the survey that tapped into this orientation (i.e.: item 13: I go to

church because it helps me to make friends; item 14: I go to church mainly because I enjoy seeing people I know there; item 15: I go to church mostly to spend time with my friends). These items are seen to reflect "religion as a social gain" (Maltby, 1999) which may not be of as much importance to students who are often in flatting situations and have opportunities outside of church activity to socialise.

Religious belief was found to have some relationship with schizotypy and abnormal thinking, however this was limited to extrinsic-personal and intrinsic religious belief. However, due to the hypothesised interaction that extrinsic-social belief would have with schizotypy and abnormal thinking, it was interesting that intrinsic religious belief had stronger correlations with schizotypy and thought distortion than extrinsic-social religious belief. Extrinsic-social religious belief had consistent non-significant correlations with all subscales of the STA and with most of the subscales of the CEQ. This may be due in part from the relatively (in comparison to the extrinsic-personal and intrinsic subscales) low correlation between extrinsic-social scores and the total score for the religiousness scale. When the intentionality subscales were combined to make one score, the correlation with extrinsic-social scores was significant but small.

Intrinsic and extrinsic-personal belief systems as questioned by the I-E scale had comparable correlations (which is inconsistent with Maltby (1999) who found that intrinsic and extrinsic values as measured by the I-E scale are independent constructs). This is probably due to the population used in this study and that a

very small percentage of participants who said they were religious went to church on a regular basis. In fact, a very high percentage (73%) went to church only on special occasions such as for weddings or funerals and 10% reported to never going to church for any occasion.

Extrinsic-personal religiousness shared positive and significant correlations with all of the subscales and total scores of both the STA and CEQ, except for the CEQ subscale of passivity phenomena which stands to reason as passivity phenomena is concerned with physical actions occurring without volition (e.g.: item # 9 of the CEQ: 'My body seems to do things without me wanting it to), and things happening to us out of our control (e.g.: item # 39 of the CEQ: 'I have found myself walking or driving without really knowing where I'm going or why'). These items are concerned with more physical than psychological phenomena which may help explain why they are insignificant in relation to the religiousness scores, religion is concerned with a belief in a greater entity and not necessarily related to physical or somatic sensations or experiences.

As might be expected, people who score higher on religious beliefs of both an extrinsic and intrinsic nature were more likely to believe in powerful forces and these were strongly correlated and significant, even for the extrinsic-social subscale. This attribution of events happening due to the force of a more powerful being ties into the notion of belief in a 'higher power', and belief in this higher power is a matter of spirituality which would lead to an attribution of higher scores on religiousness.

When gender differences were investigated, it showed that women have slightly more tendency towards schizotypal personality traits than men. This is a surprising result, particularly because no other sex differences were found on any of the religiousness measures. This appears to be contrary to previous research which generally indicates women scoring differently to men on religiousness (Donahue, 1985) and men showing more inclination to schizotypal traits than women (Thalbourne, 1994; White et al, 1995). However, Maltby et al (2000) found similar results with women scoring higher on the STA than men. They suggest it is the result of women scoring higher on the magical ideation subscale. This may be due to the level of acceptance women can have of a variety of phenomena which may be considered paranormal. Women are popularly thought to believe more in intuition, superstition and the magical realm. Belief in these ideas will lead to higher scores on schizotypy scales.

However, while gender differences were evident on the schizotypy scale they were not found on the abnormal thinking scale. This is unanticipated considering the two scales were found to be closely related in the correlational analysis. The hypothesised expectation was that men would score higher on measures of psychosis-proneness and schizophrenia (Thalbourne, 1994; Francis, 1992), however as no gender effect was found this is obviously not supported. This result may be largely due to one of the limitations of the study which will be discussed shortly.

From these results it can be concluded that, while there are some significant findings, as a whole the study failed to provide much conclusive evidence of the hypothesised relationships. This leads to the question of why, in this study, the postulated interactions were not found. The researcher suggests that there were other complex interactions and limitations of the study to be contemplated.

Results are always a function of the study design, the sample, the measures and the statistical analyses, as well as the limitations of the conceptual analyses. One of the main limitations of a study such as this is the population that was used. Due to time constraints, an undergraduate student sample was used with a fairly restricted age range. The absence of expectation that many of the respondents involved in the study will be fraught with psychological difficulties makes generalisations to other populations are somewhat tentative. This is because of the use of a homogenous sample and the probability of students being both academically able and probably psychologically well on average. This reduces the impact that some of the results may show if, for example, a psychiatric population with individuals with schizophrenia was studied.

However, the variables studied are all part of a continuum in that the findings are generally at the lower end of the scale of a broader range of symptoms and presentations. Therefore, it is an intended part of this research to be able to make possible the basis for generalisations based on the findings in order to assess the need for the appropriate intervention within mental health settings. The

implications of results such as those found in this study are widespread in the area psychology and religion for the following reasons.

Typically, religion has been excluded and ignored in the practice of psychotherapy and psychiatry. More recently, however, there has been discussion about the extent to which religion should be integrated into the training and practice of psychiatry and clinical psychology (Bergin, 1983, 1991; Ventis, 1995; Neeleman & Persuad, 1995; White, Joseph & Neil, 1995). Predominantly due to the influential nature that religion can have on lives and the notion that religious ideas could be therapeutic if utilised in a beneficial way for the right client, attempts have been made to rectify the situation by some authors and practitioners through advocating more inclusion of religious variables in the training and practice of therapists and mental health professionals (e.g., Bergin, 1991).

Bergin (1980; 1983; 1985; 1989, cited in Bergin, 1991) is the most influential author that advocates for more open acknowledgment of the therapist's values in therapy and has been urging that therapists become more conversant about the religious values which their clients may hold. He explains "Religion is at the fringe of clinical psychology when it should be at the center" (Bergin, 1980, p. 103). A paper written by Neeleman and Persaud (1995) investigates why psychiatry has "neglected the therapeutic effects of religious beliefs" (p. 169) and reached a conclusion that psychiatrists may tend to view religious belief as a "consequence of pathological process" (p. 176) and not appreciating the relationship with this to factors such as guilt and dependence.

Psychotherapists are increasingly challenged to become more effective with religiously oriented clients. Most traditional psychological models do not provide adequate understanding of religiously oriented individuals. Owing to the recent rekindling of interest in religion and spirituality, it is likely that at least some people who enter any sort of therapy will have religion in their lives. Because religion is a powerful psychological and spiritual force in the lives of the believers, it would be advantageous for therapists to feel comfortable and capable to address their religious concerns in therapy.

For religiously oriented clients, personal faith is most likely to be related to all aspects of their personal functioning. Therefore, religiousness is likely to be entangled with their fundamental psychological and interpersonal discord. Although therapists must be careful not to overinterpret or "psychologise" (which Kung writes is "an annihilation of the mystery" 1979, p. 65) *all* religious feelings and beliefs, religious expression may provide important clues to an individuals' underlying psychological dynamics and emotional conflicts. Therefore, religious material, in conjunction with other psychological data, can help the therapist gain access to their religious clients' inner experiences (Genia, 1992).

The main objective of this research was to clarify some of the literature on the nature of the relationship between the variables, and to produce some evidence as to the need for a more religious/spiritual component, albeit basic awareness as to the importance to some individuals that this may represent. It is the belief that

some of the problems that individuals facing life with schizotypal features as part of their psychological make-up often have the added burden of a fixed concept of religious belief which, if left untreated, which is so often the case, can add, rather than detract, from the presenting symptoms.

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Appendix 1

INFORMATION SHEET

The relationship between unusual thoughts, religion and schizotypal personality traits

My name is Bridget Harvey. I am doing my thesis for my Masters degree in Psychology under the supervision of Malcolm Johnson. I am interested in looking at the nature of the relationship between religious beliefs, personality traits and people's patterns of thinking.

Sometimes when people have times of stress and difficulty they can think and experience things that are different from unusual, that we might think of as 'eccentric'. This is what I am interested in - to see if these thoughts and experiences are different depending on all types of religious beliefs, including the responses of people who are agnostic or atheists. By providing some clear results, this study might help us understand the relationships between people's religious beliefs, their personalities and their cognitions.

If you would like to participate in this study, it would involve answering some initial questions that concern demographic variables and three questionnaires that have to do with religiousness, personality and conscious experiences. This would take approximately 20-25 minutes in total. If you decide to participate in the study, completing the questionnaire and handing it back implies that you have read and understood this information and consent to participate in the study.

All questionnaires will be confidential and individual participant's data will not be able to be identified. The final document will not contain any reference to any participant in the study, and all raw data used will be destroyed. Confidentiality will be maintained throughout the study.

- You have the right to decline to take part in the study.
- You may discontinue your involvement at any time until the questionnaire is handed in or posted.
- Any questions you have concerning the nature of the research or any part of the questionnaires will be answered, either before or after the survey.
- You have the right to refuse to answer any particular question at any time.

If any of the questions make you feel uncomfortable or disturbed in any way it would be advisable to talk with somebody about this. The Student Counseling Service at Massey University offers an excellent confidential service. They can be contacted on 3505935.

A summary of the results will be available to you when the study is complete, via noticeboards in your department and on the noticeboards in the School of Psychology.

Myself or my supervisor can be contacted by phone or mail if you require additional information:

Malcolm Johnson/Bridget Harvey
School of Psychology
Massey University
Private Bag 11-222
Palmerston North

(06) 3505799 ext. 2060

I appreciate your consideration. Thank you.

Regards,

Bridget Harvey

Appendix 2

When you complete and hand in these questionnaires, it implies that you consent to being a participant in this study.

DEMOGRAPHIC INFORMATION

AGE:(inyears) ....

GENDER: (please tick) male ☐ female ☐

WHAT ETHNIC GROUP DO YOU MOST IDENTIFY WITH:

....

RELIGIOUS DENOMINATION YOU MOST IDENTIFY WITH:
(if you are agnostic or atheist please indicate here)

....

YOUR CHILDHOOD RELIGIOUS DENOMINATION:

....

HOW OFTEN DO YOU GO TO CHURCH? (please tick)

Every day? ☐

Once a week? ☐

Once a month? ☐

On special occasions? ☐

(e.g: weddings, funerals, Christmas)

Never? ☐

Appendix 3

CONSCIOUS EXPERIENCE QUESTIONNAIRE

Please read the statements and tick the box that you feel is most representative of you.
There are no right or wrong answers. Please answer all questions truthfully. It is important that you are not under the influence of any alcohol/drugs while you complete this questionnaire.

1. It seems that whether good or bad things happen to me is just a matter of chance or luck.

   Never ☐ Rarely ☐ Sometimes ☐ Often ☐
   Always ☐

2. When I suffer misfortunes it is because some unseen power or force is angry with me.

   Never ☐ Rarely ☐ Sometimes ☐ Often ☐
   Always ☐

3. I feel odd or strange, as if I'm not really me.

   Never ☐ Rarely ☐ Sometimes ☐ Often ☐
   Always ☐

4. It seems that good things happen to me because some unseen power or force is rewarding me.

   Never ☐ Rarely ☐ Sometimes ☐ Often ☐
   Always ☐

5. I feel as if I have made bad things happen to others just by wishing them ill.

   Never ☐ Rarely ☐ Sometimes ☐ Often ☐
   Always ☐

6. People talk just for the sake of talking, what they say has no particular meaning or importance.

   Never ☐ Rarely ☐ Sometimes ☐ Often ☐
   Always ☐

7. My dreams seem real and life-like.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

8. I feel tired for no reason.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

9. My body seems to do things without me wanting it to.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

10. I feel like a robot, doing things without feeling anything.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

11. Things that are happening seem to have happened before, although I know that they can't have done

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

12. What people are thinking or feeling seems like a mystery to me.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

13. Good days and bad days just happen, without any particular reason or cause.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

14. I get aches and pains without any reason.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

15. It seems that things people say on TV or in the Newspapers have special messages just for me.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

16. It seems that accidents and misfortunes are meant to happen, and are the result of some power or force.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

17. When I imagine something, it can be so life-like that it seems real.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

18. When a misfortune happens to me I feel that it is 'just one of those things'.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

19. Things people do can be special messages or signs just for me.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

20. I feel that I make good things happen just by wishing for them.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

21. Things feel unreal, as if I am in a film or play.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

22. My daydreams seem real.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

23. I feel as if I can 'will' misfortunes or accidents to happen to other people.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

24. People I don't know try to pass hints or messages to me using signs or signals.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

25. I think that many events are determined by the plan of some great power.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

26. I do things without really meaning to or knowing why I do them.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

27. My ability to see or hear properly is affected, without any obvious reason.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

28. I think that when bad things happen it is just bad luck.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

29. Thoughts and ideas seem to pop up in my head for no particular reason.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

30. I seem to remember being to a place before, but I know that I couldn't have been.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

31. It feels as if I am able to 'will' good things to happen for other people.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

32. My body feels strange, as if it doesn't really belong to me.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

33. It seems that I have already done things when I have only thought about doing them.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

34. Other people seem to be unaware of the effects of what they do and say.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

35. I think that accidents happen for no particular reason.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

36. Strangers that I pass in the street seem to be saying things that are meant for me.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

37. I feel ill or poorly although there is nothing wrong with me.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

38. I think that things happen as a result of mystical powers or unseen forces.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

39. I have found myself walking or driving without really knowing where I'm going or why.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

40. Memories come back to me so realistically that I seem to be re-living the experience.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

41. It seems that I can make things happen by 'mind power'.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

42. I feel detached from events, as if I am watching myself.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

43. I say things without really meaning to or knowing why I do.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

44. People seem to do things without any particular reason or purpose.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

45. People I don't know seem to do or say things that are meant to hurt or upset me.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

46. My body twitches or cramps unexpectedly.

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

Appendix 4

STQ ITEMS

STA SCALE: Schizotypal personality

(please tick the response most applicable to you)

1. Do you believe in telepathy?

   Yes ❒ No ❒

2. Do you often feel that other people have it in for you?

   Yes ❒ No ❒

3. When in the dark do you often see shapes and forms even though there's nothing there?

   Yes ❒ No ❒

4. Does your own voice ever seem distant, far away?

   Yes ❒ No ❒

5. Does it often happen that almost every thought immediately and automatically suggests an enormous number of ideas?

   Yes ❒ No ❒

6. Do you ever become oversensitive to light or noise?

   Yes ❒ No ❒

7. Do you often have vivid dreams that disturb your sleep?

   Yes ❒ No ❒

8. When you are worried or anxious do you have trouble with your bowels?

   Yes ❒ No ❒

9. Have you ever felt that when you looked in a mirror that your face seemed different?

Yes ❒ No ❒

10. Do you feel it is safer to trust nobody?

Yes ❒ No ❒

11. Do things sometimes feel as if they were not real?

Yes ❒ No ❒

12. Do you feel lonely most of the time even when you're with people?

Yes ❒ No ❒

13. Do everyday things sometimes seem unusually large or small?

Yes ❒ No ❒

14. Are you often bothered by the feeling that people are watching you?

Yes ❒ No ❒

15. Do you feel that you cannot get 'close' to other people?

Yes ❒ No ❒

16. Do you dread going into a room by yourself where other people are already gathered and are talking?

Yes ❒ No ❒

17. Does your sense of smell sometimes become unusually strong?

Yes ❒ No ❒

18. Are you sometimes sure that other people can tell what you are thinking?

Yes ❒ No ❒

19. Have you ever had the sensation of your body, or part of it, changing shape?

Yes ❒ No ❒

20. Do you ever feel sure that something is about to happen even though there doesn't seem to be any reason for you thinking that?

Yes ❒ No ❒

21. Do you ever suddenly feel distracted by distant sounds that you are not normally aware of?

Yes ❒ No ❒

22. Do you ever have a sense of vague danger or sudden dread for reasons that you do not understand?

Yes ❒ No ❒

23. Have you ever thought you heard people talking only to discover that it was in fact some nondescript noise?

Yes ❒ No ❒

24. Do your thoughts ever stop suddenly causing you to interrupt what you're saying?

Yes ❒ No ❒

25. Do you feel that you have to be on your guard even with your friends?

Yes ❒ No ❒

26. Do you ever feel that your thoughts don't belong to you?

Yes ❒ No ❒

27. When in a crowded room do you often have difficulty in following a conversation?

Yes ❒ No ❒

28. Do you sometimes feel that your accidents are caused by mysterious forces?

Yes ❒ No ❒

29. Do you feel at times that people are talking about you?

Yes ❒ No ❒

30. Do you believe that dreams can come true?

Yes ❒ No ❒

31. Do you ever feel that your speech is difficult to understand because the words are mixed up and don't make sense?

Yes ❒ No ❒

32. Are your thoughts sometimes so strong that you can almost hear them?

Yes ❒ No ❒

33. When coming into a new situation have you ever felt strongly that it was a repeat of something that has happened before?

Yes ❒ No ❒

34. Have you ever felt that you were communicating with another person telepathically?

Yes ❒ No ❒

35. Are you easily distracted from work by daydreams?

Yes ❒ No ❒

36. Are you very hurt by criticism?

Yes ❒ No ❒

37. Do you ever get nervous when someone is walking behind you?

Yes ❒ No ❒

Appendix 5

THE 'AGE UNIVERSAL' I-E SCALE

(Please tick the box that is most TRUE for you)

1. I try hard to live all my life according to my religious beliefs

   Never ☐ Rarely ☐ Sometimes ☐ Often ☐
   Always ☐

2. It doesn't matter much what I believe so long as I am good

   Never ☐ Rarely ☐ Sometimes ☐ Often ☐
   Always ☐

3. I have often had a strong sense of God's presence

   Never ☐ Rarely ☐ Sometimes ☐ Often ☐
   Always ☐

4. My whole approach to life is based on my religion

   Never ☐ Rarely ☐ Sometimes ☐ Often ☐
   Always ☐

5. Prayers I say when I'm alone are as important as those I say in church

   Never ☐ Rarely ☐ Sometimes ☐ Often ☐
   Always ☐

6. I attend church once a week or more

   Never ☐ Rarely ☐ Sometimes ☐ Often ☐
   Always ☐

6. My religion is important because it answers many questions about the meaning of life.

   Never ☐ Rarely ☐ Sometimes ☐ Often ☐
   Always ☐

8. I enjoy reading about my religion

   Never ☐ Rarely ☐ Sometimes ☐ Often ☐
   Always ☐

9. It is important to me to spend time in private thought and prayer

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

10. What religion offers me most is comfort in times of trouble and sorrow

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

11. Prayer is for peace and happiness

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

12. I pray mainly to gain relief and protection

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

13. I go to church because it helps me to make friends

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

14. I go to church mainly because I enjoy seeing people I know there

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

15. I go to church mostly to spend time with my friends

Never ☐ Rarely ☐ Sometimes ☐ Often ☐
Always ☐

****

That is the end of the set of questionnaires.
Thank you very much for you participation in this study

Bridget Harvey