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# Deprivation model of paranormal belief: Mediation by religiosity and church involvement

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**Deprivation model of paranormal belief:  
Mediation by religiosity and church involvement**

by

Andrew Joseph Teesdale

A thesis submitted to the graduate faculty  
in partial fulfillment of the requirements for the degree of  
MASTER OF SCIENCE

Major: Sociology

Program of Study Committee:  
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Ames, Iowa

2011

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### **Abstract**

Paranormal beliefs are often divided between those that are central to traditional Christian doctrine and those that are associated with the supernatural or the occult. Using national sample data from the Baylor Religion Survey of 2005 (n = 1721), this study assesses religious (Christian) and classical (supernatural or occult) paranormal beliefs. The theoretical basis for this study of paranormal beliefs was developed from Parsons' classification for types of belief systems. The hypotheses were tested using structure equation modeling in AMOS 18, a superior method in comparison with past studies. The structural equation model analysis showed that there are two well-defined latent factors of paranormal beliefs, one religious and one classical. A positive relationship between these two paranormal belief factors was also found. Church attendance and religiosity were shown to moderate the effects of social demographics and weak support was found for the deprivation model. The study concludes with a discussion of the implications for theory and research.

## Chapter 1. Overview

### Introduction

A paranormal belief system is generated as a result of cultural, sociological, and social-psychological forces. It is linked with social institutions and social structure in identifiable ways, and has identifiable consequences. The explanation of how paranormal beliefs are accepted or rejected yields a richer understanding of social structures and their dynamics. The beliefs that individuals have accepted and those that have been rejected tell a great deal about believers and disbelievers and the society in which they live.

This study uses AMOS models of covariance structures to investigate reported paranormal beliefs because of the flexibility in testing explicit measurement and structural equation models. Testing basic hypotheses about the number of underlying dimensions of paranormal beliefs is conceptually and methodologically important. Past methodologies have failed to fully explain the phenomena. Investigating the underlying dimensions or latent factor structures of paranormal beliefs helps in the assessment of their construct validity. Methodologically, the reliability of measuring latent constructs is enhanced over typical methods of analysis, used by past studies, by using structural equation models (Joreskog and Sorbom, 1989).

Scholars in many disciplines devote attention to the study and understanding of paranormal beliefs, and there is a historically long theoretical debate about paranormal beliefs (Durkheim, 1915/1964; Frazer, 1922/1963; Malinowski, 1948/1984; Mauss, 1950/2001). Disappointingly, a large proportion of the scientific research on paranormal beliefs lacks a consistent theoretical approach to understanding these belief systems, despite the increasing amount of attention such beliefs have received in the popular media and journalism. Over the last century, there were numerous attempts to correct the lack of credibility in research on paranormal beliefs, and a host of cognitive, affective, motivational, and demographic factors were identified as associated with paranormal beliefs. However, there is a lack of a unified theoretical approach for the study of paranormal beliefs. (For existing studies and their theoretical orientations, see Irwin, 1993.) The theoretical models in the area of paranormal beliefs have been widely successful at developing typological explanations, but when taken as a whole, the work is often contradictory and lacks continuity.

Based upon the work of Talcott Parsons, as outlined in *The Social System* (1951), the nature of paranormal beliefs will be examined in this study. No comprehensive analysis or critique will be performed so as to justify the merits of Parsons' work; rather the classification system developed by Parsons will be used to allow for insight in the undertaken analysis. Such a critique of Parsons' theoretical work would require a far larger thesis than what is necessary for the work at hand. Parsons saw religion as an evolutionary universal necessity for the survival of society. He also considers religion to be a pre-condition for the development of many of the apparently classical features of modern society.

Focusing on this single work by Parsons allows for the social researcher to place him or herself fully within the framework offered by the theoretical perspective within the work. While newer theoretical approaches and methodological branches for sociology have occurred since its 1951 publication, the underlying theoretical components and structures offered within Parsons' work still have applicability to modern, theoretical problems and situations. In the author's judgment, no fundamental shifts and/or changes have occurred to the underlying

theoretical structure offered by Parsons' presentation of the social system. While it is possible to construct the belief perspective along different theoretical lines, using different theoretical languages, to express the same, underlying concepts to match the prevailing system of symbols used within sociology, such an adaptation would result in little more than a semantic display and theoretical manipulation.

Within the literature on paranormal beliefs the deprivation model acts as the groundwork for understanding the relationship between social demographics and paranormal beliefs, and this theoretical framework holds that paranormal beliefs provide individuals with a method of coping with the psychological, social, and physical strains of occupying a specific socioeconomic status (Glock & Stark, 1965; Stark & Bainbridge, 1980). If the deprivation theory is accurate, then paranormal beliefs should appear more frequently amongst marginalized social groups, including minorities and the impoverished. In addition, individuals who are more likely to hold paranormal beliefs are, in turn, more likely to also have paranormal experiences in order to validate those beliefs.

Besides the lack of an adequate definition of paranormal beliefs, there has been another hindrance to a sociological understanding of them. Namely, most existing studies on paranormal beliefs have examined only a few determinants at a time, while the relative importance of various determinants has not been studied. Further, sociological similarities and dissimilarities between religious people and paranormal believers are unknown, as their characteristics are analyzed separately, and only a few correlations have been examined at a time. Even though religious people's beliefs are definable in the same way as paranormal beliefs, it is likely that differences exist between people who believe in religious paranormal beliefs, those who believe in the classical paranormal beliefs, and those who believe in both, and that this is due to differences in fostering these beliefs in society.

A summary of the most relevant studies, with national samples, are located in Table 1. The majority of research on paranormal beliefs uses an autobiographical methodology to develop an experienced-based typology (Greeley, 1975; Sno & Linszen, 1990). Only a few sociological studies have attempted to investigate paranormal beliefs using a national representational sample; these include Emmons and Sobal (1981), Greeley (1975), Hay and Morisy (1978), and Haraldsson (1981; 1988).

### **Thesis Statements and Research Questions**

This study tested three hypotheses:

- Deprivation model accurately predicts those individuals who believe in the paranormal -- both religious and classical -- in that those beliefs appear more frequently among marginalized social groups, including minorities, women, the uneducated, and the impoverished. (I)
- Church involvement and religiosity act as mediators of the deprivation model effect by increasing religious (Christian) and decreasing classical (supernatural or occult) paranormal beliefs among marginalized social groups, including minorities, women, the uneducated, and the impoverished. (II)
- Religious and classical paranormal beliefs are positively related because they are based on the same epistemological claims. (III)

Using the following research questions

- Does the deprivation model predict the direction of the regression pathway coefficient between social demographics and paranormal beliefs? (I)



- Does church involvement and religiosity increase religious paranormal belief and reduce classical paranormal belief rates among marginalized social groups? (II)
- Do the latent factor models of paranormal beliefs -- religious and classical -- have a positive error correlation? (III)

## Chapter 2. Review of Literature

### Introduction

Beliefs are suspended in an intricate causal web of social forces and consequences. Social structure is considered the root cause of such beliefs. An individual's culture and religious institutions allow the use of paranormal beliefs to offer comfort and camaraderie. Individuals arrive at paranormal beliefs from many different sources, but the strongest come from social relationships—such as the internalization of religious values and norms—in which people learn appropriate belief systems to express their discomfort with life experiences.

The different perspectives on religion in American society have resulted in a long theoretical debate (Durkheim, 1915/1964; Frazer, 1922/1963; Malinowski, 1948/1984; Mauss, 1950/2001). However, the psychologies of cognition, belief, and experience, and the sociologies of culture, science, knowledge, and religion also have much to offer. Marx, Weber, and Durkheim represent the historical core of the sociological tradition. Each of these unique traditions has a basis in a different epistemology, and has offered profound insights into the nature of society. Each of these perspectives proposes a unique way of addressing problems associated with modernity, including how religion factors into a society built on principles of the Enlightenment, and the foundations of rationalism.

Over the last century, the number of individuals reporting paranormal beliefs has increased. This increase comes in stark contrast with the hypothesis that, as the scientific understanding of the non-existence of paranormal phenomena became widely accepted during the 20th century, the levels of paranormal beliefs would decrease (Frazer, 1922/1963; Mauss, 1950/2001). Marx (1843/1971), Freud (1930/1994; 1927/1975), and Weber (1922/1993) expected religious belief to wane in the light of modernity. However, religion remains one of the most prominent features of human life in the 21st century. While most established societies have grown predominantly secular, with the curious exception of the United States, orthodox religion is in full bloom throughout the developing world.

A major task in researching paranormal beliefs is in presenting the underlying structure of those beliefs (Durkheim, 1915/1964; Frazer, 1922/1963; Malinowski, 1948/1984; Mauss, 1950/2001). The debate centers on whether it is appropriate to group all paranormal beliefs together as a single construct or as independent subsets that must be treated separately. Paranormal beliefs have been represented as a multidimensional construct, where multiple beliefs can be reduced to specific factors (Tobacyk & Milford, 1983). Whether the factors are manifestations of one higher-order construct or whether they express independent dimensions is still highly debated. The beliefs have repeatedly formed several factors in factor analytic studies and have been shown to make up a multidimensional construct (Grimmer & White, 1990; Randall & Desrosiers, 1980; Tobacyk & Milford, 1983).

Classically, the division in paranormal beliefs is based upon society's mainstream religions (social structure), with all other paranormal beliefs placed as a separate grouping. When this method is applied to American society, two groupings emerge: those beliefs based upon Judeo-Christian religions, and all remaining paranormal beliefs. The most common Christian religious beliefs—the belief in God, the Devil, Heaven and Hell, and life after death—are termed “religious paranormal beliefs.” The term “classical paranormal belief” is used to denote all kinds of superstitious, supernatural, occult, and magical beliefs that are not linked to Christian religious origin. Paranormal beliefs include beliefs that are of a mainly Christian religious origin and also those beliefs that find their origin

outside of the society's accepted religious doctrines. These two traditional grouping, classical and religious, will be used for analysis.

### **Theoretical Grounding**

The fundamental interpretation, as proposed by Parsons, of human motivation is that of a balance between gratification and deprivation. Action, according to Parsons, is defined as;

... a process in the actor-situation system which has motivational significance to the individual actor, or, in the case of a collectivity, its component individuals. This means that the orientation of the corresponding action processes has a bearing on the attainment of gratifications or the avoidance of deprivations of the relevant actor, whatever concretely in the light of the relevant personality structures these may be (Parsons, p. 4).

Individuals are motivated to reduce discrepancies between the belief systems they have internalized through interaction and experiences that bring those beliefs into question. The gratification and deprivation of motivation is not single dimension, but rather is defined in the social context that requires the individuals to respond to discrepancies using different processes.

It is a fundamental property of action thus defined that it does not consist only of ad hoc "responses" to particular situational "stimuli" but that the actor develops a system of "expectations" relative to the various objects of the situation. These may be structured only relative to his own need-dispositions and the probabilities of gratification or deprivations contingent on the various alternatives of action which he may undertake. But in the case of interaction with social objects a further dimension is added. Part of ego's expectation, in many cases the most crucial part, consists in the probable reaction of alter to ego's possible action, a reaction which comes to be anticipated in advance and thus to affect ego's own choices. (Parsons, p. 5).

The social system was Parsons' main concern. This is society as a whole, or the various institutions such as the family within society. Parsons' definition of the social system is:

... a plurality of individual actors interacting with each other in a situation which has at least a physical or environmental aspect, actors who are motivated in terms of a tendency to the 'optimization of gratification' and whose relation to their situations, including each other, is defined and mediated in terms of a system of culturally structured and shared symbols (Parsons, 1951, p. 5-6).

Within Parsons' classification system of beliefs, or a system of culturally structured and shared symbols, a sharp distinction is made between empirical and non-empirical beliefs. The distinction between the two rests upon the ability of individuals to test one's reality by cognitive or rational means. Empirical ideas or beliefs involve "processes which are defined as subject to understanding and manipulation in a pattern of 'practical rationality,' that is, in terms of what we call empirical science and its functional equivalents in other cultures" (Parsons, 1951, p. 328). Non-empirical beliefs are seen as residual, or remainders left over by empirical beliefs. They concern "subjects which are defined as beyond the reach of the methodology of empirical science or its equivalent in the culture in question" (Parsons, 1951, p. 328). Such a presumption is not held by the author, who positions empirical and non-empirical beliefs in the absence of a normative system as neither having a superior or residual role, but rather an equivalent one.

The next distinction is made between evaluative belief systems and existential belief systems. Parsons terms beliefs in which the cognitive component is primary "existential beliefs." He terms beliefs in which the

evaluative component is primary as "evaluative beliefs." (Parsons, 1951, p. 329) A note should be made that Parsons positions social systems in much the same way that Weber uses ideal types, and therefore, any social, cultural, or personality system is only distinct in the abstract. Here, the problem of meaning for the actor is raised (Parsons, 1951, p. 329). By combining these two divisions, four fundamental types of belief systems are developed:

- 1) Empirical and existential belief systems, a special type of which is termed scientific belief systems,
- 2) Non-empirical and existential belief systems, which are termed philosophic belief systems,
- 3) Empirical and evaluative belief systems, which are termed ideological belief systems,  
and
- 4) Non-empirical and evaluative belief systems, which are termed religious belief systems (Parsons, 1951, p. 332).

A modification of Parsons' belief system framework is needed in the re-labeling of the "religious belief system," to that of a "paranormal belief system," comprising of both religious and classical paranormal beliefs. The distinction between religious paranormal beliefs and classical paranormal beliefs is necessary because of an underlying distinction between the two social phenomena. While both types of beliefs are contained within what Parsons refers to as religious belief systems, it is necessary for conceptual clarity to make the distinction. Religious paranormal beliefs are much in the same order for which Parsons framed religious beliefs systems, and is an interlocking set of beliefs that relies on an internal continuity (Parsons, 1951, p. 330). Classical paranormal beliefs is a category of paranormal beliefs that does not rely on interlocking sets of concepts within an internal continuity, but rather are individually held beliefs that do not require consistency between them.

By understanding the distinction between the four belief types, an analysis of paranormal beliefs can be framed in the relationship to the other three types of belief systems. Paranormal beliefs are non-empirical and evaluative beliefs and serve to fill in the gaps left by scientific beliefs, philosophic beliefs, and ideological beliefs that cannot be reduced to ignorance or error. The term "systems" is dropped in that it implies a relationship between the beliefs as an interlocking set. Individuals are motivated to fill these gaps because of discrepancies between internalized cultural beliefs and conflicting experiences or perceptions that result in an internal conflict.

Individuals seek to maintain an understanding of their social world because discrepancies are unpleasant. Scientific and ideological beliefs are unable to address questions of a non-empirical basis. The use of rationality, as positioned within scientific and ideological beliefs, offers only an inadequate solution to these underlying questions. A system of beliefs is developed based on philosophical and paranormal explanations of these non-empirical questions in order to reduce the discrepancies between experiences and the beliefs offering explanations of those experiences. A philosophical system of beliefs offers an internal logic that is able to address many of the same questions as a paranormal belief system, but lacks the evaluative component of paranormal beliefs. It is inappropriate to view these belief types as exclusive categories for anything other than clarifying an ideal relationship between the four categories. Distinctions between the four categories are often blurred, especially for individuals who hold strong beliefs that are positioned in one of the belief categories.

The theoretical framework proposed for paranormal beliefs provides that individuals are not required to abandon a system of beliefs in order to accept a specific set of beliefs. An individual could be a stern believer in the scientific method and the norms of the scientific approach to understanding knowledge, while also maintaining both religious and classical paranormal beliefs. This mutual holding of belief is not without possible tensions, and when

belief systems are in direct contrast with each other, it is more likely for individuals to be unable to manage the discrepancies between the two belief systems, and to seek restitution in order to remove that discrepancy. The fact that each type of belief has a different root—that of empirical, non-empirical, evaluative, and existential—allows for the individual to have a different basis for the holding of each belief type.

From this theoretical perspective, individuals who are in a state of deprivation would be more likely to lack an explanation for discrepancies they have experienced. Individuals in a position of social deprivation are more likely to question the social world because, to them, discrepancies are more readily noticeable. When other forms of understanding the social world fail to offer an adequate explanation for that individual's social deprivation, they can use social sanctioned paranormal beliefs to lessen that discrepancy. Both religious and classical paranormal beliefs are as likely to be used as an explanation for the deprivation. However, when a person is involved with an institution that advocates a set of beliefs, those beliefs often take precedence. Religious paranormal beliefs are nested within religious institutions, and when an individual interacts with that institution, they are more likely to offer explanations for the discrepancies they have experienced due to the deprivation of their position. An individual in a socially deprived position is equally expected to seek out both types of paranormal beliefs, however those involved with a religious institution are less likely to seek out classical paranormal beliefs because they already have a set of beliefs they have been socialized to use. Classical paranormal beliefs do not act as a functional alternative to religious paranormal beliefs, rather they are equal in their epistemological claims, but cannot be held if an individual ascribes to an institution that offers an alternative set of beliefs. Individuals who are not involved in a religious institution, and are at a state of social deprivation, have higher rates of both forms of belief because they are equally justifiable by this theoretical perspective.

This theory supports a positive relationship proposed by some theorists. This is because both belief types deal with phenomena that have the same epistemological root (Goode, 2000), and also a negative relationship through the rejection of classical paranormal beliefs by Christian institutional doctrine, leaving individuals highly involved in the church to discard classical paranormal beliefs (Emmons & Sobal, 1981; Goode, 2000; Rice, 2003).

### **Deprivation Model**

The deprivation model was produced through psychological studies that linked paranormal belief to authoritarian thinking and personality types (Heard & Vyse, 1999), which is a psychological need to create and externalize locus of control (Groth-Marnat & Pegden, 1998), and a component of a psychological illnesses such as schizophrenia (Thalbourne M. , 1994), and paranoia with delusional fears (Lange, 1999). These studies offer an explanation for only a fraction of the cases for which individuals report paranormal beliefs. In recent decades, there have been studies that find personality or psychopathological variables correlate with paranormal beliefs (Rattet & Bursik, 2001; Wiseman, Greening, & Smith, 2003; Wolfradt, 1997). Disappointingly many of these studies have shown only inconsistent results. Instead, these studies produced mixed results in which the underlying conceptualization of superstition was only weakly performed and inadequately tested.

For example, it has been shown that people put their faith in religious beliefs in times of crisis. This is summarized in Paragament's (2002) article in *Psychological Inquiry Journal*. Paragament drew six conclusions from the empirical literature:

1. Some forms of religion are more helpful than others. A religion that is internalized, intrinsically motivated, and built on a belief in a greater meaning in life, a secure relationship with God, and a sense of spiritual connectedness with others has positive implications for well-being. Conversely, a religion that is imposed, unexamined, and reflective of a tenuous relationship with God and the world bodes poorly for well-being, at least in the short-term.
2. There are advantages and disadvantages to even controversial forms of religion. For example, fundamentalism has been linked both to greater prejudice toward a variety of groups and to greater personal well-being.
3. Not everyone experiences the same benefits from religion. Religiousness is more helpful to more socially marginalized groups (e.g., older people, African-Americans, women, poor people) and to those who are more religiously committed.
4. Religion is more helpful (and possibly more harmful) in some situations than others. Religious beliefs and practices appear to be especially valuable in more stressful situations (e.g., death) that push people to the limits of their own personal and social resources. Some evidence also suggests that religion is particularly helpful to Roman Catholics dealing with controllable life stressors and to Protestants coping with uncontrollable life events.
5. The efficacy of religion depends on the degree to which it well integrated into peoples' lives. Those who benefit most from their religion are more likely to
  - a. be part of a larger social context that supports their faith;
  - b. apply means that are appropriate to their religious ends;
  - c. select religious appraisals and solutions that are tailored to the problem at hand; and
  - d. blend their religious beliefs, practices, and motivations harmoniously with each other.
6. On the other hand, well-being is more likely to suffer when religion is fragmented, that is when
  - a. religious identity is not supported by the social environment;
  - b. means are used that are disproportionate to religious ends;
  - c. religious definitions and solutions are inappropriate to the problem;
  - d. religious beliefs, practices, and motivations lack coherence with each other (Pargament, 2002, pp. 177-178).

Moving past the psychological basis of the deprivation model, the effects of culture, institutions, and society must be considered. It was proposed that an individual's culture allows the use of paranormal beliefs to acquire comfort and comradeship. Individuals arrive at paranormal beliefs from many different sources, the strongest being social relationships, in which he or she learn the appropriate belief systems to express their discomfort due to experiences. The relationship is hypothesized to exist because the effect negative events have on the ability of the individual to maintain a sense of control, or loss of stability, over the events of their lives. Padgett and Jorgenson (1982) research showed that interest in astrology increase during the Great Depression of the United States; and in Germany a measurement of superstition was directly linked to economic threat from 1918 to 1940.

Research involving demographic variables has been shown to support the deprivation model involving paranormal beliefs (Goode, 2000). Paranormal beliefs correlate with social variables such as conservatism (Boshier, 1973), sex (Blum S. H., 1976; Bhushan & Bhushan, 1986), surgical stress (Shrimali & Broota, 1987), and locus of control (Randall & Desrosiers, 1980; Scheidt, 1973). Goode's survey of 484 students at the State University of New York found that women, African Americans, and those who have lower education are more likely to have paranormal beliefs (Goode, 2000, pp. 166-167).

The clearest results involved sex. Women are more likely to report having paranormal beliefs than men (Goode, 2000; Stark R. , 2002; Vyse S. A., 1997). Stark (2002) showed that women were more likely to hold paranormal beliefs. However, when the type of paranormal belief was considered, the sex variable was a weaker

predictor, depending on the belief. Earlier work indicates that women hold more religious and classical paranormal beliefs than men, with the exception of the belief in extraterrestrial life forms (Rice, 2003; Tobacyk & Pirttilä-Backman, 1992; Vyse S. A., 1997). The effect of sex has been hypothesized to be the result of socialization, where men are trained to think more analytically and less intuitively than women (Lieberman, 2000; Pacini & Epstein, 1999). The more likely difference between men and women, however, is the negative social position that has been placed upon women.

The relationships between paranormal beliefs and age have been examined, but no clear pattern has yet to be identified (Rice, 2003; Vyse S. A., 1997). Some researchers find that the young are more likely to have paranormal beliefs (Greeley, 1975). However, Bourque's (1969) findings, based on 1,608 interviews, conclude that older people are more likely to have such beliefs.

Intelligent or highly educated participants have been shown to have less paranormal beliefs (Blum S. H., 1974; Blum S. H., 1976; Jahoda, 1970; Killen, Wildman, & Wildman, 1974; Mencken, Bader, & Kim, 2009). Killen, Wildman, and Wildman (1974), in addition to Blum (1974; 1976), found an inverse relationship between paranormal beliefs and intelligence. In most studies that have included participants from a wide variety of educational levels, paranormal beliefs have been less prevalent among the more educated (Orenstein, 2002; Otis & Alcock, 1982; Za'rour, 1972). Despite Irwin's (1993) assessment in a meta-analysis of paranormal belief research that shows that there is no correlation between paranormal belief and intelligence, the general trend has been towards a negative connection (Vyse S. A., 1997).

As a demographic variable, race presents a consistent pattern. African Americans are more likely to believe in classical paranormal phenomena, although white men are more likely to believe in UFOs (Greeley, 1975; Wuthnow, 1978; Goode, 2000). However, the inclusion of race as a variable of interest in the study of paranormal beliefs has only been partially performed, and lacks a full assessment. This limitation is partly due to the selective samples researchers have available for analysis. It has also been suggested that African Americans due to the unique placement within society due to the heritage of racism will face higher levels of social strain resulting in greater levels of reported paranormal belief (Fox 1992; MacDonald 1994)

Married individuals, compared with other marital statuses, are protected from the social and structural strain of normal and major life events (Coombs, 1991). Spouses provide a source of social support that is less available to individuals who are unmarried, single, widowed, or divorced. Structural strain is especially important for those individuals who are widowed because of the death of their spouses, and also because of their tendency to be older, more religious, and their greater probability of being female rather than male (Greeley, 1975; Haraldsson, Survey of claimed contacts with the dead, 1988).

Members of what is considered to be lower social classes are often hypothesized to use religious paranormal beliefs as an adaptive mechanism to cope with the structural strain of their disadvantaged social position (Hay & Morisy, 1978). Social class indicators, such as education and income, are also hypothesized to be inversely associated with reported paranormal beliefs.

A number of studies have shown that paranormal belief positively correlates with religiosity (Buchmann & Zaugg, 1983; Orenstein, 2002). Other studies did not support the association between paranormal beliefs, religiosity, or church involvement (Ellis, 1988; Rice, 2003; Thalbourne & Hensley, 2001). The results suggest that most

individual that reported a high level of classical paranormal belief tended to be the least religious. Thalbourne and other studies do not support associations between paranormal beliefs, religiosity, or church involvement (Ellis, 1988; Rice, 2003; Thalbourne & Hensley, 2001). A study by Hensley (2001) indicated that there is a small, non-significant inverse correlation between religiosity and paranormal belief. The negative relationship between religiosity and the belief in the paranormal has also been explained by the rejection of the paranormal by official Christian doctrine, leading highly religious people to discard classical paranormal beliefs (Emmons & Sobal, 1981; Goode, 2000; Rice, 2003; Orenstein, 2002; Mencken, Bader, & Kim, 2009). These studies conceptualized religiosity as to how fundamentalist the religion was or as church attendance.

Scholars have also examined the interrelationships between religious and classical paranormal beliefs. In empirical studies, religious and classical paranormal beliefs have been both positively related (Goode, 2000; Rudski, 2003; Sjöberg & af Wåhlberg, 2002) and negatively related or unrelated (MacDonald, 2000; Rice, 2003; Mencken, Bader, & Kim, 2009). These studies have been guided by two hypotheses, and represent the functional alternative approach to paranormal beliefs. One holds that there is an inverse relationship between the two belief structures; that is, most people who believe in one type of paranormal phenomenon will not believe in the other. For some researchers, this hypothesis is based on the idea that classical paranormal beliefs functions as a set of substitute beliefs for people who are outside of mainstream religions (Emmons & Sobal, 1981). For others, the hypothesis rests on the notion that lay Christians reject classical paranormal beliefs because church hierarchies do not endorse them (Goode, 2000; Sparks, 1998). Either way, it is believed that there is a negative correlation between the belief in religious and classical paranormal phenomena.

The second hypothesis takes the opposite view, contending that people who believe in one type of paranormal phenomena will also tend to believe in the other. To proponents of this position, it is a small step to move from believing in the devil and angels to believing in ghosts and aliens; both "affirm the existence of realities beyond the mundane existence of everyday life," and both lie outside accepted science (Wuthnow, 1978, p. 71). This hypothesis emphasizes the similarities in the thought processes that lead people to believe in the paranormal, whereas the first hypothesis stresses the underlying tension and competition between religious and classical paranormal beliefs. Empirical work testing these rival hypotheses has produced contradictory results. Orenstein (2002) aptly sums up this literature when he writes, "the available studies do not clearly show whether religious belief is positively related, negatively related, or unrelated to paranormal belief" (p. 302).

Emmons and Sobal (1981) findings support the view that classical paranormal beliefs and religious paranormal beliefs are negatively correlated, requiring highly religious people to discard classical paranormal beliefs. Alan Orenstein in JSSR (Orenstein, 2002) used Reginald Bibby's (1995) Project Canada to demonstrate that classical paranormal beliefs are not substitutes for religious paranormal beliefs. Rather, religion and classical paranormal beliefs are instead strongly and positively correlated. Using scales, Orenstein makes a compelling case that religious and classical paranormal beliefs are positively correlated, but that classical paranormal beliefs and church attendance are negatively associated, even when controlling for religious affiliation, sex, education, marital status, and having moved in the last five years (Orenstein 2002:308).

Mckinnon (2003) used the same data to show that, while Orenstein's basic model is true, however consideration is needed to control for the interaction between church involvement, measured as church attendance,



and paranormal belief. Mckinnon shows that religious paranormal beliefs and classical paranormal beliefs are positively correlated, but only for those who do not attend church regularly. Individuals highly involved in a church will disclaim paranormal beliefs outside of Christian doctrine, but have supported doctrinal supernatural beliefs such as believing in the efficacy of prayer (Beck, 2001). MacDonald (1995) established an even stronger tie between religious and classical paranormal beliefs. He presented empirical support for a “cultural source” hypothesis, which is that one who holds religious beliefs is pre-conditioned to also hold paranormal beliefs and to have paranormal experiences. Underlying all such approaches, however, are implicit assumptions of social influence.

### **Measurement Issues of Past Studies**

Data limitations represent a major difficulty for researchers that study paranormal beliefs. The limitation of valid data sources has resulted in many conflicting results pertaining to the demographics of, and relationship between, paranormal beliefs. Often studies of paranormal belief use samples of convenience, such as college students with little or no survey preparation (McClenon 1990; Svensen, White, & Caird 1993; Tobacyk and Milford 1983; Tobacyk, Miller, Murphy, & Mitchell 1988; Tobacyk & Wilkinson 1991; Tobacyk & Wilson 1988). The usual concerns of generalizability are in place with many of the studies reviewed. The thoughts of college and high school students may or may not represent the general population, and are too selective of a group to represent an inclusive investigation of paranormal beliefs (Rice, 2003). A major difficulty facing surveys of the general population, however, is that they often include only a few relevant questions, or include questions that are stated poorly (Rice, 2003). The very few large, national surveys that have included questions on paranormal beliefs are often limited to religious or classical forms, and do not ask about both. Virtually all studies of paranormal beliefs have faced serious methodological problems.

Studies that have used the General Social Survey (Davis and Smith 1989) face issues of validity due to the wording of questions that are not altogether consistent with definitions of paranormal beliefs (Fox, 1992). Another issue is that data of the GSS has frequency distributions for some of the reported paranormal beliefs that are skewed, and are often the result of questions asked that involve paranormal beliefs where either score to one extreme or the other (Rice, 2003).

The common objection raised against many studies of paranormal beliefs and experiences is that, by combining different paranormal beliefs and experiences into a single scale, it "may artificially reduce the predictive power of variables that are important predictors of only one or a few of the items in the scale, and may lead to the development of faulty theoretical models" (MacDonald 1995:369). Some studies have used paranormal beliefs as single variable rather than a scale construction. These studies have produced only small differences between the predictors for each belief, for which the authors lack explanation. Typically, combining variables to produce a scale has resulted in valid measures for analysis; a more powerful method is to construct a latent factor to model paranormal belief.

### Chapter 3. Method

#### Data

The data used for this study is publicly available at the Association of Religious Data and Archives (<http://www.thearda.com/>). The Baylor Institute for Studies in Religion received a major, three-year grant from the John M. Templeton foundation in order to conduct a nationally represented, multi-year study of religious values, practices, and behaviors, with a specific focus on consumption of religious goods and services (Baylor University, 2005). The Baylor study attempts to improve on previous work so as to yield a more systematic understanding of the ambiguous relationship between trust, civil engagement, and religion. The study, completed in partnership with the Gallup organization, uses the most recent methodology for constructing social measurements of religious..

In 2005, the Gallup organization collected a final sample (n) of 1721 adults in the United States. The Gallup Organization used a mixed mode sampling design that included telephone and cell phone surveys, and ministry mailed surveys. The first stage of the survey included the completion of 1002 telephone interviews from a national sample of adults, 18 years older. The sampling was a random, dialed telephone sample drawn from the telephone exchange service in the continental United States. At the randomly selected households, Gallup attempted to conduct an interview with the individual, aged 18 or over, who had the most recent birthday. The methodology design included a three phone-call sampling, in which an initial call was placed, with two follow-up calls. Individuals who completed the telephone survey were informed that they were participating to understand Americans values and beliefs, and were requested to complete a written survey for an additional five dollar incentive. Upon agreement of further research, an address was requested in order to send the survey. Of the 1002 individuals who responded to the telephone survey, 603 agreed to participate, and disclosed their addresses for mailing purpose. The written survey was sent out the day after the telephone interview, an additional 2000 questionnaires were mailed based upon a random, digit-dialing sample design. Recruitment for the study was conducted from October 7 to November 1, 2005.

The self-administered survey booklet was 16 pages in length, and included a title page, “The Values and Beliefs of the American Public – A National Study.” Two thousand six-hundred and three surveys were sent with a cover letter explaining the study’s objectives, including a reference number to call with any comments or concerns. The Gallup organization then sent a follow-up letter thanking the participant for their corroboration and for filling out the self-administered survey. A follow-up reminder postcard was sent to all those who denied responding to the original survey mailing. A final, survey was also utilized in order to maximize participation. Of the 2603 surveys issued, 1721 were completed and returned, resulting in a total sample contact of 46.5%. The final sample data contains information necessary for weighting in order to represent national characteristics.

The current study faces certain methodological problems. Studies that use secondary source data are limited to questions that are found within the survey; sometimes these questions are based upon definitions of the paranormal that are not in continuity with previous research. The Baylor Institution study offers a wide variety of questions that are well-suited for the analysis of paranormal beliefs. There has been little or no agreement within the literature as to which beliefs should be considered paranormal in nature. This study uses the structure presented by the Baylor Institution study in its classification of questions. A better data set could have included longitudinal data, so as to test the impact of purported paranormal beliefs and experiences, but there is currently no data set of this

type. The data itself contains a “Western” bias in which phenomena are considered to be religious paranormal beliefs based on classic Judeo-Christian tenets. The sample includes only North American subjects, and lacks a representation of religions other than Judeo-Christian.

### **Methodology**

Structural equation modeling (SEM) grows out of and serves purposes similar to multiple regression, but is a more powerful way, because it takes into account the modeling of interactions, nonlinearities, correlated independents, measurement error, correlated error terms, multiple latent independents (each measured by multiple indicators), and one or more latent dependents, each also with multiple indicators. SEM is a more powerful alternative to other methods, including, multiple regression, path analysis, factor analysis, time series analysis, and analysis of covariance. That is, these procedures are special cases of SEM, or, put another way, SEM is an extension of the general linear model (GLM) of which multiple regression is a part.

The advantages of SEM (when compared to multiple regression), as it is used in past models involving this specific social phenomena, include: more flexible assumptions (particularly allowing interpretation even in the face of multicollinearity); use of confirmatory factor analysis to reduce measurement error by having multiple indicators per latent variable; the attraction of SEM's graphical modeling interface; the desirability of testing models overall rather than coefficients individually; the ability to test models with multiple dependents; the ability to model mediating variables rather than be restricted to an additive model (in OLS regression, the dependent is a function of the Var1 effect, plus the Var2 effect, plus the Var3 effect, etc.); the ability to model error terms; the ability to test coefficients across multiple between-subject groups; and ability to handle difficult data (time series with auto-correlated error, non-normal data, and incomplete data). Moreover, where regression is highly susceptible to errors of interpretation by misspecification, the SEM strategy of comparing alternative models to assess relative model fit, makes it more robust.

### **Models**

Four latent factor measurement models were created in order to test the hypotheses: religious paranormal beliefs, classical paranormal beliefs, church involvement, and religiosity. These four measurement model were then combined with the independent variables “religious attendance”, “no religion tradition”, and social structure position indicators (Figure 1) for the development of a structural model. Church involvement and religiosity are placed as mediators of religious paranormal beliefs and classical paranormal beliefs within the model. The indicators for religious and classical paranormal beliefs were based on the traditional separation between the two latent factor models: traditional Christian doctrine and those that are associated with the supernatural or the occult. Church involvement indicators were chosen for their ability to represent institutional involvement in a religion. Religiosity indicators were chosen based upon their ability to represent an internalization of religious practices and values independent of the religious institution. Prier studies on paranormal belief used church attendance as the indicator of church involvement and religiosity, when what religion the individual participated in was not chosen.

*Measurement Model: Religious Paranormal Belief*

The 2005, the Baylor study included a battery of questions about religious and classical paranormal beliefs (see Appendix A). These nine questions are listed by the study as religious paranormal beliefs, and are as follows:

In your opinion does the following exist...

- God.
- Satan.
- Heaven.
- Hell.
- Purgatory.
- Angels.
- Demons.
- Armageddon.
- The Rapture.

These questions have four response categories, which include “absolutely not,” “probably not,” “probably,” and “absolutely.” The questions for this analysis were coded 0 to 3, with zero being “absolutely not” and three being “absolutely.” These questions are used as the indicators for the latent factor model of “religious paranormal belief” (Figure 2).

*Measurement Model: Classical Paranormal Beliefs*

The next ten questions are listed by the study as classical paranormal beliefs. The questions are as follows:

To what extent do you agree or disagree with the following statement?

- We are approaching an entirely new age that will radically change our view of science, spiritual knowledge, or humanity.
- Ancient advanced civilizations, such as alignments, once existed.
- Some medicinal treatments are at least as effective as traditional medicine.
- It is possible influence the physical world through the mind alone.
- Astrologers, palm readers, tarot card readers, fortunetellers, and psychics can see the future.
- Astrology impacts one's life and personality.
- It is possible to communicate with the dead.
- Places can be haunted.
- Dreams sometimes foretell the future or reveal hidden truths.
- Some UFOs are probably spaceships from other worlds.
- Creatures such as Bigfoot and the Loch Ness monster will one day be discovered by science.

These questions were used for this analysis, and were coded 0 to 4, with zero being “strongly disagree,” two as “undecided,” and four as “strongly agree.” “Undecided” was coded as the median choice between “strongly agree” and “strongly disagree,” as it represents a neutral view of the paranormal phenomena, and not “I don't know.” The questions are used as the indicators for the latent factor model of “classical paranormal belief” (Figure 3)

*Measurement Model: Church Involvement*

A non-deviational model was created using a one-factor model, labeled “church involvement” (Figure 4). The Baylor survey contains the ten questions that represent church involvement. Of these, 5 questions were used as

the indicators for the latent factor model of “church involvement.” The questions were chosen based on participation in religious activity not related directly to rituals of the religion. These questions are as follows:

How often did you participate in the following religious activities last month?

- Religious education programs, such as Bible study or Sunday school,
- Community or missionary outreach programs,
- Prayer meetings,
- Committee or administrative work at your church,
- Small group or Discipleship.

These questions have four response categories, which include “not at all,” “1 to 2 times,” “3 to 4 times,” and “5 or more times.” The questions for this analysis were coded 0 to 3, with zero being “not at all” and three being “five or more times.”

#### *Measurement Model: Religiosity*

A non-deviational model was created using a one-factor model, labeled “religiosity” (Figure 5). The questions contained in the Baylor survey were chosen to represent religiosity based on their ability to represent an internalization of religious paranormal beliefs independent of church involvement or church attendance. The survey contained three suitable questions, the first being “Outside of attending religious services, about how often do you read the Bible, Koran, Torah, or other sacred books?” This question was coded from 0 to 8, with 0 = “never,” 1 = “less than once a year,” 2 = “once or twice a year,” 3 = “several times a year,” 4 = “once a month,” 5 = “2 to 3 times a month,” 6 = “about weekly,” 7 = “weekly,” 8 = “several times a week or more often.” The next question is “About how often do you pray or meditate outside of religious services?” This question was coded 0 to 5, with 0 = “never,” 1 = “only on certain occasions,” 2 = “once a week or less,” 3 = “two times a week,” 4 = “once a day,” 5 = “several times a day.” The last question on religiosity is “How often, if at all, do you participate in table prayers or grace before or after meals?” This question was coded 0 to 4, with 0 = “never,” 1 = “only on certain occasions,” 2 = “at least once a week,” 3 = “at least once a day,” 4 = “at all meals.”

#### *Structural Model: Paranormal Beliefs - Mediated by Religiosity and Church Involvement*

A non-recursive structural model was created using the identified measurement models: religious paranormal beliefs, classical paranormal beliefs, church involvement, and religiosity. Religious paranormal belief model and classical paranormal belief models are predicted by church involvement, religiosity, and social demographic indicators. Church involvement and religiosity also act as mediators of the social demographics and Religious paranormal belief model and classical paranormal belief models (Figure 6).

The social demographic indicators that are used in the model as independent variables are: age, race, sex, education, total household income, no religious tradition, religious attendance, and marital status. Age was coded in numbers ranging from 18 to 93. Sex is coded 0 = “man” and 1 = “woman”. Race is coded 0 = “white” and 1 = non-Caucasian (non-Caucasian races are grouped together due to their low availability in this data set). Education is a seven categorical variable, with 0 = “8th grade or less;” 1 = “9th-12th grade (no high school diploma);” 2 = “High school graduate;” 3 = “some college;” 4 = “trade technical or vocational training;” 5 = “college graduate;” 6 = “Post-doctorate work/degree.” Total household income is a seven categorical variable, with 1 = “\$10,000 or less;” 2

= “\$10,001 - \$20,000;” 3 = “\$20,001 - \$35,000;” 4 = “\$35,001 - \$50,000;” 5 = “\$50,001 - \$100,000;” 6 = “\$100,001 - \$150,000;” 7 = “\$150,001 or more”. Marital status was coded into a two category variable, with 0 = “married” or “living as married;” 1 = “never married” or “separated;” “divorced” or “widowed.” Religious attendance was measured with a nine category question: “How often do you attend religious services?” The question was coded with 0 = “never,” 1 = “less than once a year,” 2 = “once or twice a year,” 3 = “several times a year,” 4 = “once a month,” 5 = “2 to 3 times a month,” 6 = “about weekly,” 7 = “weekly,” 8 = “several times a week.”

## Chapter 4. Results

### Identification and Assumptions

The establishment of models of paranormal beliefs was performed using structural equation modeling in AMOS 18 by maximum likelihood estimation, and through Bayesian estimation before the influence of social variables. Bayesian estimation results were compared to the maximum likelihood estimations were used in order to verify the maximum likelihood model. Maximum likelihood estimation assumes interval data, and the sample included both nominal and ordered-categorical data. No deviation was found between the two-model estimation methodology, and the maximum likelihood estimate results are reported. No violations of the assumptions, of the linearity, outlier, multicollinearity, uncorrelated error terms, non-zero covariances, and multivariate normal distribution of the latent dependent variables, were identified.

All measurement models were tested for identification using both empirical and rule of thumb methods. The t-rule showed that the model was necessary. The three-indicator rule was also met as a sufficient condition of identification, in that the factor complexity was one, the model was scaled, each factor had at least three indicators, and the  $\Theta$  matrix was diagonal. The Rank Rule was also used to meet both the necessary and sufficient rules of SEM. All confirmatory and measurement models were both significantly and necessarily identified, unless otherwise noted. All models were non-recursive. The missing response data was estimated using list-wise, full information maximum likelihood (FIML; Kline, 2005).

Cronbach's alpha measures were used to verify and establish indicators for the corresponding latent variables, represented by the factors. A common rule of thumb is that the indicators should have a Cronbach's alpha of 0.7 to judge the set as reliable. In this data set, all measurement model indicators were above the threshold, with a value of 0.8 or above. Other unexamined models may fit the data just as well or better; the accepted model is a not-dis-confirmed model.

The sample and models were not without issues. For purposes of MLE estimation, each indicator should be normally distributed for each value of each other indicator. Even small departures from multivariate normality can lead to large differences in the chi-square test, undermining its utility. In general, violation of this assumption inflates chi-square, but under certain circumstances, may deflate it. Use of ordinal or dichotomous measurement is a cause of violation of multivariate normality as found in this study. The inflated chi-square statistic for the model as a whole is biased toward Type I error, rejecting a model that should not be rejected. The same bias also occurs for other indexes of fit besides model chi-square. Violations of multivariate normality could result in moderate to severe underestimation of standard errors. This reduced standard error means that regression paths and error covariance are found to be statistically significant more often than they should be. In this case, all of the models were found to contain mild to moderate violations of multivariate normality, with the strongest case being that of religious paranormal belief indicators. The models, however, were still unbiased and efficient because the residuals are multivariate and normally distributed, with means of 0, and have constant variance across the independents. Additionally, the residuals are also not correlated with each other or with independents.

### **Measurement Model: Religious Paranormal Beliefs**

The non-deviational model, “religious paranormal beliefs,” was created for maximum likelihood estimation, and was tested for model fit. Model fit was forced through an ad-hock process. Based on residual covariance of the non-correlated measurement model, correlated measurement errors were imposed to improve model fit, as shown in Figure 4. "Modification indexes" and other coefficients were used by the researcher to alter the model to improve fit. No theoretical judgment was performed as to the correlated measurement errors and the choices were made based upon only empirical statics.

Support was not found for the hypothesized model fit with a chi square test of  $X^2(34, N = 1721) = 119.1733, p < 0.000$  and a CMIN/DF of 30.28. The RMSEA was 0.1305 (Lo 10 = 0.1219 and HI 90 = 0.1393), and shows a poor fit, with a range over the 0.10 threshold. Both the chi square test and RMSEA demonstrate a poor fit. The CFI was 0.9578 and the TLI was 0.9564. The CFI indicates that 95% of the covariation in the data can be reproduced by the given model. The IFI was 0.9848 and the NFI was 0.9807, both indicating good to very good model fit. The measures of fit indicate a good model fit, with the exception of chi square and RMSEA.

The results of the maximum likelihood estimates for un-standardized regression coefficients of the single factor model of religious paranormal beliefs are shown in Table 2, standardized coefficients in Table 3, and covariances of the errors in Table 4.

### **Measurement Model: Classical Paranormal Beliefs**

The non-deviational model, “classical paranormal beliefs,” was created using maximum likelihood estimation, and was tested for model fit. Model fit was forced through an ad-hock process. Based on residual covariance of the non-correlated measurement model, correlated measurement errors were imposed to improve model fit, as shown in Figure 5. No theoretical judgment was performed as to the correlated measurements error and the choices were made based upon only empirical statics.

Support was not found for the hypothesized model fit, with a chi square test  $X^2(26, N = 1721) = 82.99, p < 0.000$ , and a CMIN/DF ratio of 4.58. The RMSEA was 0.0456 (Lo 10 of 0.0375 and HI 90 of 0.0541), which shows a good fit with a range under the 0.10 threshold. The CFI and TLI indicate a good fit, with a CFI of 0.9577 and a TLI of 0.9094. The CFI indicates that 96% of the covariation in the data can be reproduced by the given model. The IFI was 0.9847 and the NFI was 0.9612, both indicating good model fit. The measures of fit indicated a good model fit, with the exception of chi square.

The results of the maximum likelihood estimates for un-standardized regression coefficients of the single factor model of classical paranormal beliefs are shown in Table 5, standardized coefficients in Table 6, and covariances of the measurement errors in Table 7.

### **Measurement Model: Church Involvement**

The non-deviational model, “church involvement,” was created using maximum likelihood estimation, and was tested for model fit. Weak support was found for the hypothesized model fit, with a chi square test of  $X^2(5, N = 1721) = 46.6476, p < 0.000$ , and a CMIN/DF ratio of 9.33. The RMSEA was 0.0696 (Lo 10 of



0.0522 and HI 90 of 0.0885), which shows a good fit with a range under the 0.10 threshold. The CFI and TLI indicate a good fit, with a CFI of 0.9867 and a TLI of 0.9733. The CFI indicates that 99% of the covariation in the data can be reproduced by the given model. The IFI was 0.9867, NFI was 0.9851 and RFI was 0.9702 indicating good model fit. The measures of fit indicate a good model fit, with the exception of chi square.

The results of the maximum likelihood estimates for un-standardized regression coefficients of the single factor model of church involvement are shown in Table 8 and standardized coefficients in Table 9. The model contained no covariances of the measurement errors

#### **Measurement Model: Religiosity**

The non-deviational model, “religiosity,” was created using maximum likelihood estimation, The model is a “just identified” or “saturated” case, and computing the path parameters uses up all the available degrees of freedom and goodness of fit tests on the model, and cannot be calculated. The results of the maximum likelihood estimates for un-standardized regression coefficients of the single factor model of religiosity paranormal beliefs with are shown in Table 10 and S=standardized coefficients are shown in Table 11. The model contained no covariances of the measurement errors.

#### **Structural Model: Paranormal Beliefs - Mediation by Religiosity and Church Involvement**

The non-recursive structural model was created using the identified measurement models of “religious paranormal beliefs,” “classical paranormal beliefs,” “religiosity,” and “church involvement.” Social demographic factors that were used in the model as dependent variables are: age, race, sex, education, total household income, no religious tradition, church attendance, and marital status. Means and intercepts were scaled and estimated. SMC, the square mean correlations, are in Table 12, and correlations between the latent factor models in Table 13. The results of the structural model are shown in Tables 14-17, including standardized total effects, standardized direct effects, and standardized indirect effects.

## Chapter 5. Discussion

### **Does the deprivation model predict the direction of the regression pathway coefficient between social demographics and paranormal beliefs? (I)**

The predictive indicator variables in the model produced both direct and indirect effects. The direct effects represented the direct influence a given indicator had on levels of religious and classical paranormal belief. The indirect effects were the effect of the given indicator mediated by church involvement and religiosity.

No significant direct or indirect relationship was found between marital and paranormal beliefs (classical and religious). These findings do not support Coombs' (1991), Greeley's (1975), and Haraldsson's (1988) hypotheses of married individuals being protected from the social, structural strain of normal and major life events. Rather married individuals were found here to be more likely to participate in church and also to practice religious traditions outside of church. The deprivation model is not supported for religious and classical paranormal beliefs related to marital status.

No significant direct or indirect relationship was found between minority indicator and paranormal beliefs (classical and religious). The deprivation model is not supported for religious and classical paranormal belief, when controlling for church involvement and religiosity related to race. The findings do not support the research of Goode (1975, 2000), Wuthnow (1978), and Vyse (1979) involving race. However, the inclusion of race as a variable of interest in this study of paranormal beliefs can only be partially performed, and lacks a full assessment due to the limitation in the sample.

No significant direct or indirect relationship was found between income and classical paranormal beliefs. The income indicator is negatively, directly and indirectly, related to having religious paranormal beliefs. The deprivation model is weakly supported for religious paranormal beliefs, controlling for church involvement and religiosity related to income. However, the deprivation model is not supported involving classical paranormal beliefs and income. In short, the results indicate that, as individuals earn larger amounts of money, they are less likely to hold religious paranormal beliefs. These individuals are also less likely to have high levels of church involvement or religiosity.

No significant direct or indirect relationship was found between age and classical paranormal beliefs. Age is negatively, direct, and no indirect relationship to having religious paranormal beliefs. The deprivation model is unsupported for classical paranormal belief, when controlling for church involvement and religiosity related to age. Older individuals are less likely to hold religious paranormal beliefs. Age did not affect levels of church involvement or religiosity. An older individual having few paranormal beliefs is in contrast with the findings of Bourque (1969) that older people are more likely to have had such beliefs.

No significant direct or indirect relationship was found between education and classical paranormal beliefs. Education is negatively, direct, related to having religious paranormal beliefs. There is no direct interaction between education, church involvement, and religiosity, which eliminated any indirect effects on religious and classical paranormal beliefs. The deprivation model is supported for religious paranormal beliefs, when controlling for church involvement and religiosity related to education. Individuals with more educational achievement are less likely to

hold religious paranormal beliefs. The negative relationship between education and paranormal belief is supported by Vyse (1997), Blum (1974, 1976), Jahoda (1970), and Killen, Wildman, and Wildman (1974). These findings are at odds with Irwin (1993) who, in a meta-analysis of several studies of paranormal belief research, showed that there was no correlation between paranormal belief and intelligence.

The sex indicator was negatively, direct, as well as positively, indirect, related to having religious paranormal beliefs. The sex indicator positively, direct, as well as positively, indirect, related to having classical paranormal beliefs. The positive indirect relationships are due to the interaction of the sex indicator with mediators of church involvement and religiosity. The negative direct relationship with religious paranormal beliefs is at odds with past finding, however the difference is hypothesized to be caused by methodological issues of past studies. The findings support the research of Goode (2000), Stark (2002), and Vyse (1979) involving sex, where they find that women are more likely to report having religious and classical paranormal beliefs. In this study, the deprivation model is strongly supported for religious and classical paranormal beliefs, while controlling for church involvement and religiosity. However, such support may be questioned in that a different mechanism may be responsible for relationship. Further study is needed to explore the nature of the relationship between sex and paranormal belief.

The results of this study showed weak or no support for the deprivation model. A majority of the indicators failed to predict classical paranormal belief, or did so at low or non-significant levels. The support for the deprivation model was only slightly stronger for religious paranormal belief. While the deprivation model of paranormal belief may still be correct the current data set and measures, especially the sex indicator, demonstrates the need for additional research. This study

### **Does church involvement and religiosity increase religious paranormal belief and reduce classical paranormal belief rates among marginalized social groups? (II)**

The mediation effect was tested using the measurement models of “Church Involvement” and “Religiosity.” Church involvement and religiosity are shown to mediate the effects of demographic variables when compared to the direct and total effects of those variables and paranormal beliefs (Table 14-17). All the statistical significant demographic indicators in the model demonstrate an indirect effect through church involvement and religiosity.

In this study, church involvement is negatively related to having religious and classical paranormal beliefs. This finding is at odds with the functional alternative model, and the works of Wuthnow (1978), who proposed that, once a person subscribes to one set of paranormal beliefs, “it is easy—even natural—to” subscribe to other sets of beliefs. Goode (2000), and also Sparks (1998), propose that lay Christians will reject classic paranormal beliefs because their church hierarchies do not endorse them. This is supported by the model through the inclusion of controls for church involvement and religiosity. Emmons and Sobal’s (1981) hypothesis, that classical paranormal beliefs function as a set of substitute beliefs for people who are outside mainstream religions is not supported. For individuals who are not involved in the Christian religious institution are no more or less likely to believe in paranormal. Instead, an increase in church involvement results in a decrease in paranormal belief. A new hypothesis and future testing is needed to understand the negative relationship between church involvement and paranormal belief both religious and classical. This relationship may be influenced by unknown social factors or mechanisms that are not identified within this study as proposed by Orenstein (2002).

Religiosity is positively related to having religious paranormal beliefs, and has no relationship to classical paranormal beliefs. The relationship is partly supportive of Buchermann and Zaugg (1983) and Orenstein (2002) who show that paranormal belief is positively correlated with religiosity. However, the effect is found to be limited to religious paranormal belief. Religiosity, as being positively related to having religious paranormal beliefs, and not related to having classical paranormal beliefs, is not supportive of the functional alternative model in that individuals who have internalized religious, institutional practices will have lower rates of paranormal belief. This follows the research done on the subject by Ellis (1988), Rice (2003), and Thalbourne and Hensley (2001). The relationship also does support the logic of Schwartz and Huismans (1995) that a higher level of religiosity produces higher levels of religious paranormal belief.

### **Do the latent factor models of paranormal beliefs -- religious and classical -- have a positive error correlation? (III)**

The hypothesis of a positive relationship between religious paranormal beliefs and those of classical paranormal beliefs is supported by the positive error correlation between the two latent factors (Table 13). The positive relationship is maintained when controls are added for demographics, church involvement, and religiosity. Orenstein's (2002) claim that paranormal beliefs are not substitutes for religious beliefs, rather, religious and classical paranormal beliefs are strongly and positively correlated, is supported by the findings of this study (Table X). McKinnon's (2003) argument for the need to create a control for the relationship between church involvement and paranormal beliefs was also found to be accurate. This study differs in that the positive interaction between the two latent paranormal factors is maintained even when an individual has high church involvement.

### **Implications**

This study supports the proposed theoretical framework for understanding paranormal beliefs, despite the lack of statistical support for the differential model. The structural model demonstrates the effects of religiosity, church involvement, religious attendance, and not prescribing to a religious faith. The single indicators that present a compelling relationship with classical paranormal belief was that of sex. While not directly tested Parsons' model of paranormal beliefs, and the classification and identification of beliefs, was not disconfirm. The separation of the two belief structures into two independent but positively related factors based upon the cultural system within the United States does offer support for the socially positioned nature of paranormal belief.

What may account for the relationships present in the structural model could be the influence of religious socialization, personal community relationships, and demographic characteristics of classical and religious paranormal belief. The origin of the social process that results appearance of paranormal beliefs may be rooted in a non-deprivation based social structure. An individual's personal relationships are influence their internalization and acceptance of paranormal beliefs. The effect of demographic characteristics could be influence by the individual's community as shown in their involvement in the church, their religiosity, their religious attendance, and what particular faith they practice. Religious socialization may be the driving force in the development of individual's paranormal beliefs. Religious socialization is important not only because it provides the individual with a world view, but because it channels individuals into social communities that sustain a particular world view. The

hypothesis is still in line Parsons' model of the social system, with the driving force of the development of paranormal being that of community cohesion instead of deprivation.

## Chapter 6. Conclusion

A paranormal belief system is generated as a result of cultural, social, and social-psychological forces. It is linked with social institutions and social structure in identifiable ways, and has identifiable consequences. The explanation of how paranormal beliefs are accepted or rejected yields a richer understanding of social structures and their dynamics. Accepting one or more belief, or accepting a system of beliefs that rules others out of the realm of the possible, tells us a great deal about believers and disbelievers and the society in which they live.

Paranormal beliefs include beliefs that are of mainly Christian religious origin, as well as those beliefs that find origin outside of society's accepted religious doctrines. Both of these beliefs are positively related, but separate. The hypothesis of a positive relationship existing between religious paranormal beliefs and classical paranormal beliefs is supported in this study by the positive error correlation between the two latent factors. The results of this study showed weak support for the deprivation model with predicted direct effects for religious paranormal belief. Church involvement and religiosity are shown to mediate the effects of the demographic variables through the indirect effects, when compared to the direct and total effects of those variables and paranormal beliefs. The strongest of the demographic indicators was that of sex, and additional research is needed in order to fully explore this relationship.

Parsons' theoretical model for the social system and classification of paranormal belief is partly supportive by the model. Additional theoretical work is needed to clarify the relationship between social structure and the development and maintenance of paranormal beliefs. This study showed the importance of church involvement, religious attendance, participation in a religious faith, religiosity, and sex has on the acceptance and internalization of religious beliefs. Additional studies are needed in order to assess the nature of this relationship. Further studies into the effect of socialization and group cohesion would be beneficial in the understanding of paranormal belief and social structure.

The lack of continuity in research of paranormal beliefs does not decrease the significance of understanding the mechanisms in place for the development of such beliefs. While the subject matter has little impact on important issues of our time, this study offers insight into the underlying social processes that individuals participate in when reporting beliefs. Such social processes are in place for any beliefs an individual reports, including those that support the social order, the structures of inequality, the expression of an ideology, and social organizations.

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## Appendix A: Codebook

### Church Involvement

31) Q14A

Q14 How often did you participate in the following religious activities last month - a. Religious education programs, such as Bible study or Sunday school

RANGE: 1 to 4

|                    | N    | Mean  | Std. Deviation |
|--------------------|------|-------|----------------|
| Total              | 1658 | 1.578 | 0.983          |
| 1) Not at all      | 1162 | 70.1  |                |
| 2) 1-2 times       | 169  | 10.2  |                |
| 3) 3-4 times       | 191  | 11.5  |                |
| 4) 5 or more times | 136  | 8.2   |                |
| Missing            | 63   |       |                |

34) Q14D

Q14 How often did you participate in the following religious activities last month - d. Community or missionary outreach programs

RANGE: 1 to 4

|                    | N    | Mean  | Std. Deviation |
|--------------------|------|-------|----------------|
| Total              | 1622 | 1.287 | 0.618          |
| 1) Not at all      | 1269 | 78.2  |                |
| 2) 1-2 times       | 270  | 16.6  |                |
| 3) 3-4 times       | 53   | 3.3   |                |
| 4) 5 or more times | 30   | 1.8   |                |
| Missing            | 99   |       |                |

36) Q14F

Q14 How often did you participate in the following religious activities last month - f. Prayer meetings

RANGE: 1 to 4

|                    | N    | Mean  | Std. Deviation |
|--------------------|------|-------|----------------|
| Total              | 1623 | 1.312 | 0.711          |
| 1) Not at all      | 1304 | 80.3  |                |
| 2) 1-2 times       | 179  | 11.0  |                |
| 3) 3-4 times       | 92   | 5.7   |                |
| 4) 5 or more times | 48   | 3.0   |                |
| Missing            | 98   |       |                |

37) Q14G

Q14 How often did you participate in the following religious activities last month - g. Committee or administrative work at your church

RANGE: 1 to 4

|                    | N    | Mean  | Std. Deviation |
|--------------------|------|-------|----------------|
| Total              | 1618 | 1.248 | 0.627          |
| 1) Not at all      | 1347 | 83.3  |                |
| 2) 1-2 times       | 178  | 11.0  |                |
| 3) 3-4 times       | 56   | 3.5   |                |
| 4) 5 or more times | 37   | 2.3   |                |
| Missing            | 103  |       |                |

38) Q14H

Q14 How often did you participate in the following religious activities last month - h. Small group or Discipleship

RANGE: 1 to 4

|       | N    | Mean  | Std. Deviation |
|-------|------|-------|----------------|
| Total | 1614 | 1.238 | 0.627          |

|                    |      |      |
|--------------------|------|------|
| 1) Not at all      | 1368 | 84.8 |
| 2) 1-2 times       | 141  | 8.7  |
| 3) 3-4 times       | 72   | 4.5  |
| 4) 5 or more times | 33   | 2.0  |
| Missing            | 107  |      |

### Religiosity

41) Q15

Q15 Outside of attending religious services, about how often do you read the Bible, Koran, Torah, or other sacred book

RANGE: 1 to 9

|                                       | N    | Mean  | Std. Deviation |
|---------------------------------------|------|-------|----------------|
| Total                                 | 1698 | 4.261 | 2.938          |
| 1) Never                              | 410  | 24.1  |                |
| 2) Less than once a year              | 240  | 14.1  |                |
| 3) Once or twice a year               | 191  | 11.2  |                |
| 4) Several times a year               | 231  | 13.6  |                |
| 5) Once a month                       | 42   | 2.5   |                |
| 6) 2-3 times a month                  | 101  | 5.9   |                |
| 7) About weekly                       | 116  | 6.8   |                |
| 8) Weekly                             | 82   | 4.8   |                |
| 9) Several times a week or more often | 285  | 16.8  |                |
| Missing                               | 23   |       |                |

42) Q16

Q16 About how often do you pray or meditate outside of religious services

RANGE: 1 to 6

|                              | N    | Mean  | Std. Deviation |
|------------------------------|------|-------|----------------|
| Total                        | 1697 | 4.021 | 1.771          |
| 1) Never                     | 221  | 13.0  |                |
| 2) Only on certain occasions | 241  | 14.2  |                |
| 3) Once a week or less       | 117  | 6.9   |                |
| 4) A few times a week        | 295  | 17.4  |                |
| 5) Once a day                | 348  | 20.5  |                |
| 6) Several times a day       | 475  | 28.0  |                |
| Missing                      | 24   |       |                |

45) Q18

Q18 How often, if at all, do you participate in table prayers or grace before or after meals

RANGE: 1 to 5

|                              | N    | Mean  | Std. Deviation |
|------------------------------|------|-------|----------------|
| Total                        | 1504 | 2.824 | 1.302          |
| 1) Never                     | 154  | 10.2  |                |
| 2) Only on certain occasions | 713  | 47.4  |                |
| 3) At least once a week      | 136  | 9.0   |                |
| 4) At least once a day       | 246  | 16.4  |                |
| 5) At all meals              | 255  | 17.0  |                |
| Missing                      | 217  |       |                |

### Demographics

19) Q5

Q5 How often do you attend religious services?

RANGE: 1 to 9

|       | N    | Mean  | Std. Deviation |
|-------|------|-------|----------------|
| Total | 1699 | 4.936 | 2.876          |

|                          |     |      |  |
|--------------------------|-----|------|--|
| 1) Never                 | 358 | 21.1 |  |
| 2) Less than once a year | 105 | 6.2  |  |
| 3) Once or twice a year  | 159 | 9.4  |  |
| 4) Several times a year  | 210 | 12.4 |  |
| 5) Once a month          | 57  | 3.4  |  |
| 6) 2-3 times a month     | 137 | 8.1  |  |
| 7) About weekly          | 135 | 7.9  |  |
| 8) Weekly                | 393 | 23.1 |  |
| 9) Several times a week  | 145 | 8.5  |  |
| Missing                  | 22  |      |  |

## 270) Q51

Q51 Gender of respondent

RANGE: 1 to 2

|           | N    | Mean  | Std. Deviation |
|-----------|------|-------|----------------|
| Total     | 1721 | 1.567 | 0.496          |
| 1) Male   | 745  | 43.3  |                |
| 2) Female | 976  | 56.7  |                |

## 271) Q52

Q52 Age of respondent

RANGE: 18 to 93

|       | N    | Mean   | Std. Deviation |
|-------|------|--------|----------------|
| Total | 1701 | 53.632 | 15.667         |
| 18)   | 3    | 0.2    |                |
| 19)   | 7    | 0.4    |                |
| 20)   | 5    | 0.3    |                |
| 21)   | 9    | 0.5    |                |
| 22)   | 3    | 0.2    |                |
| 23)   | 4    | 0.2    |                |
| 24)   | 11   | 0.6    |                |
| 25)   | 12   | 0.7    |                |
| 26)   | 18   | 1.1    |                |
| 27)   | 14   | 0.8    |                |
| 28)   | 11   | 0.6    |                |
| 29)   | 14   | 0.8    |                |
| 30)   | 20   | 1.2    |                |
| 31)   | 27   | 1.6    |                |
| 32)   | 23   | 1.4    |                |
| 33)   | 27   | 1.6    |                |
| 34)   | 23   | 1.4    |                |
| 35)   | 26   | 1.5    |                |
| 36)   | 25   | 1.5    |                |
| 37)   | 15   | 0.9    |                |
| 38)   | 13   | 0.8    |                |
| 39)   | 33   | 1.9    |                |
| 40)   | 36   | 2.1    |                |
| 41)   | 37   | 2.2    |                |
| 42)   | 34   | 2.0    |                |
| 43)   | 29   | 1.7    |                |
| 44)   | 31   | 1.8    |                |
| 45)   | 26   | 1.5    |                |
| 46)   | 36   | 2.1    |                |
| 47)   | 31   | 1.8    |                |
| 48)   | 33   | 1.9    |                |
| 49)   | 29   | 1.7    |                |
| 50)   | 37   | 2.2    |                |
| 51)   | 36   | 2.1    |                |
| 52)   | 29   | 1.7    |                |
| 53)   | 42   | 2.5    |                |
| 54)   | 46   | 2.7    |                |
| 55)   | 51   | 3.0    |                |

|         |    |     |
|---------|----|-----|
| 56)     | 45 | 2.6 |
| 57)     | 48 | 2.8 |
| 58)     | 42 | 2.5 |
| 59)     | 40 | 2.4 |
| 60)     | 43 | 2.5 |
| 61)     | 22 | 1.3 |
| 62)     | 46 | 2.7 |
| 63)     | 42 | 2.5 |
| 64)     | 25 | 1.5 |
| 65)     | 30 | 1.8 |
| 66)     | 36 | 2.1 |
| 67)     | 38 | 2.2 |
| 68)     | 21 | 1.2 |
| 69)     | 32 | 1.9 |
| 70)     | 25 | 1.5 |
| 71)     | 26 | 1.5 |
| 72)     | 22 | 1.3 |
| 73)     | 27 | 1.6 |
| 74)     | 17 | 1.0 |
| 75)     | 19 | 1.1 |
| 76)     | 16 | 0.9 |
| 77)     | 22 | 1.3 |
| 78)     | 12 | 0.7 |
| 79)     | 20 | 1.2 |
| 80)     | 12 | 0.7 |
| 81)     | 14 | 0.8 |
| 82)     | 7  | 0.4 |
| 83)     | 10 | 0.6 |
| 84)     | 3  | 0.2 |
| 85)     | 7  | 0.4 |
| 86)     | 2  | 0.1 |
| 87)     | 6  | 0.4 |
| 88)     | 6  | 0.4 |
| 89)     | 7  | 0.4 |
| 90)     | 2  | 0.1 |
| 91)     | 2  | 0.1 |
| 93)     | 1  | 0.1 |
| Missing | 20 |     |

## 283) Q58

Q58 What is your current marital status?

RANGE: 1 to 6

|                      | N    | Mean  | Std. Deviation |
|----------------------|------|-------|----------------|
| Total                | 1691 | 2.704 | 1.53           |
| 1) Never married     | 192  | 11.4  |                |
| 2) Married           | 1043 | 61.7  |                |
| 3) Living as married | 61   | 3.6   |                |
| 4) Separated         | 17   | 1.0   |                |
| 5) Divorced          | 225  | 13.3  |                |
| 6) Widowed           | 153  | 9.0   |                |
| Missing              | 30   |       |                |

## 284) Q59

Q59 Education of respondent

RANGE: 1 to 7

|  | N    | Mean  | Std. Deviation |
|--|------|-------|----------------|
| Total                                      | 1690 | 5.059 | 1.567          |
| 1) 8th grade or less                       | 17   | 1.0   |                |
| 2) 9th-12th grade (no high school diploma) | 45   | 2.7   |                |
| 3) High school graduate (12)               |      |       |                |

|  |     |      |
|--|-----|------|
|  | 257 | 15.2 |
| 4) Some college                        | 410 | 24.3 |
| 5) Trade/Technical/Vocational training | 140 | 8.3  |
| 6) College graduate                    | 415 | 24.6 |
| 7) Postgraduate work/Degree            | 406 | 24.0 |
| Missing                                | 31  |      |

285) Q60

Q60 Household income

RANGE: 1 to 7

|                          | N    | Mean  | Std. Deviation |
|--------------------------|------|-------|----------------|
| Total                    | 1611 | 4.401 | 1.52           |
| 1) \$10,000 or less      | 78   | 4.8   |                |
| 2) \$10,001 - \$20,000   | 119  | 7.4   |                |
| 3) \$20,001 - \$35,000   | 232  | 14.4  |                |
| 4) \$35,001 - \$50,000   | 302  | 18.7  |                |
| 5) \$50,001 - \$100,000  | 549  | 34.1  |                |
| 6) \$100,001 - \$150,000 | 192  | 11.9  |                |
| 7) \$150,001 or more     | 139  | 8.6   |                |
| Missing                  | 110  |       |                |

**Religious Paranormal Beliefs**

87) Q26A

Q26 In your opinion, does each of the following ... exist a.

God

RANGE: 1 to 4

|                   | N    | Mean  | Std. Deviation |
|-------------------|------|-------|----------------|
| Total             | 1685 | 1.399 | 0.792          |
| 1) Absolutely     | 1268 | 75.3  |                |
| 2) Probably       | 231  | 13.7  |                |
| 3) Probably not   | 116  | 6.9   |                |
| 4) Absolutely not | 70   | 4.2   |                |
| Missing           | 36   |       |                |

88) Q26B

Q26 In your opinion, does each of the following ... exist b.

Satan

RANGE: 1 to 4

|                   | N    | Mean  | Std. Deviation |
|-------------------|------|-------|----------------|
| Total             | 1668 | 1.829 | 1.053          |
| 1) Absolutely     | 917  | 55.0  |                |
| 2) Probably       | 293  | 17.6  |                |
| 3) Probably not   | 284  | 17.0  |                |
| 4) Absolutely not | 174  | 10.4  |                |
| Missing           | 53   |       |                |

89) Q26C

Q26 In your opinion, does each of the following ... exist c.

Heaven

RANGE: 1 to 4

|                   | N    | Mean  | Std. Deviation |
|-------------------|------|-------|----------------|
| Total             | 1675 | 1.605 | 0.936          |
| 1) Absolutely     | 1077 | 64.3  |                |
| 2) Probably       | 300  | 17.9  |                |
| 3) Probably not   | 180  | 10.7  |                |
| 4) Absolutely not | 118  | 7.0   |                |
| Missing           | 46   |       |                |

90) Q26D

Q26D In your opinion, does each of the following ... exist d. Hell

RANGE: 1 to 4

|                   | N    | Mean  | Std. Deviation |
|-------------------|------|-------|----------------|
| Total             | 1667 | 1.867 | 1.055          |
| 1) Absolutely     | 882  | 52.9  |                |
| 2) Probably       | 295  | 17.7  |                |
| 3) Probably not   | 319  | 19.1  |                |
| 4) Absolutely not | 171  | 10.3  |                |
| Missing           | 54   |       |                |

91) Q26E

Q26 In your opinion, does each of the following ... exist e.

Purgatory

RANGE: 1 to 4

|                   | N    | Mean  | Std. Deviation |
|-------------------|------|-------|----------------|
| Total             | 1611 | 2.657 | 1.061          |
| 1) Absolutely     | 306  | 19.0  |                |
| 2) Probably       | 358  | 22.2  |                |
| 3) Probably not   | 529  | 32.8  |                |
| 4) Absolutely not | 418  | 25.9  |                |
| Missing           | 110  |       |                |

92) Q26F

Q26 In your opinion, does each of the following ... exist f.

Angels

RANGE: 1 to 4

|                   | N    | Mean  | Std. Deviation |
|-------------------|------|-------|----------------|
| Total             | 1670 | 1.663 | 0.967          |
| 1) Absolutely     | 1023 | 61.3  |                |
| 2) Probably       | 320  | 19.2  |                |
| 3) Probably not   | 194  | 11.6  |                |
| 4) Absolutely not | 133  | 8.0   |                |
| Missing           | 51   |       |                |

93) Q26G

Q26 In your opinion, does each of the following ... exist g.

Demons

RANGE: 1 to 4

|                   | N    | Mean  | Std. Deviation |
|-------------------|------|-------|----------------|
| Total             | 1634 | 2.025 | 1.07           |
| 1) Absolutely     | 713  | 43.6  |                |
| 2) Probably       | 369  | 22.6  |                |
| 3) Probably not   | 350  | 21.4  |                |
| 4) Absolutely not | 202  | 12.4  |                |
| Missing           | 87   |       |                |

94) Q26H

Q26 In your opinion, does each of the following ... exist h.

Armageddon

RANGE: 1 to 4

|                   | N    | Mean  | Std. Deviation |
|-------------------|------|-------|----------------|
| Total             | 1596 | 2.302 | 1.088          |
| 1) Absolutely     | 506  | 31.7  |                |
| 2) Probably       | 371  | 23.2  |                |
| 3) Probably not   | 450  | 28.2  |                |
| 4) Absolutely not | 269  | 16.9  |                |
| Missing           | 125  |       |                |

95) Q26I

Q26 In your opinion, does each of the following ... exist i.

The Rapture

RANGE: 1 to 4

|                   | N    | Mean  | Std. Deviation |
|-------------------|------|-------|----------------|
| Total             | 1588 | 2.379 | 1.129          |
| 1) Absolutely     | 516  | 32.5  |                |
| 2) Probably       | 262  | 16.5  |                |
| 3) Probably not   | 502  | 31.6  |                |
| 4) Absolutely not | 308  | 19.4  |                |
| Missing           | 133  |       |                |

### Classical Paranormal Beliefs

96) Q26J

Q26 In your opinion, does each of the following ... exist j.

Ghosts

RANGE: 1 to 4

|                   | N    | Mean  | Std. Deviation |
|-------------------|------|-------|----------------|
| Total             | 1621 | 2.585 | 1.02           |
| 1) Absolutely     | 290  | 17.9  |                |
| 2) Probably       | 448  | 27.6  |                |
| 3) Probably not   | 527  | 32.5  |                |
| 4) Absolutely not | 356  | 22.0  |                |
| Missing           | 100  |       |                |

367) Q74A

Q74 To what extent do you agree or disagree with the following statements..a. We are approaching an entirely new age that will radically change our view of science, spiritual knowledge, or humanity

RANGE: 1 to 5

|                      | N    | Mean | Std. Deviation |
|----------------------|------|------|----------------|
| Total                | 1634 | 2.94 | 1.266          |
| 1) Strongly agree    | 187  | 11.4 |                |
| 2) Agree             | 500  | 30.6 |                |
| 3) Disagree          | 471  | 28.8 |                |
| 4) Strongly disagree | 176  | 10.8 |                |
| 5) Undecided         | 300  | 18.4 |                |
| Missing              | 87   |      |                |

368) Q74B

Q74 To what extent do you agree or disagree with the following statements..b. Ancient advanced civilizations, such as Atlantis, once existed

RANGE: 1 to 5

|                      | N    | Mean  | Std. Deviation |
|----------------------|------|-------|----------------|
| Total                | 1634 | 3.187 | 1.394          |
| 1) Strongly agree    | 135  | 8.3   |                |
| 2) Agree             | 561  | 34.3  |                |
| 3) Disagree          | 299  | 18.3  |                |
| 4) Strongly disagree | 142  | 8.7   |                |
| 5) Undecided         | 497  | 30.4  |                |
| Missing              | 87   |       |                |

369) Q74C

Q74 To what extent do you agree or disagree with the following statements..c. Some alternative treatments are at least as effective as traditional medicine

RANGE: 1 to 5

|       | N    | Mean  | Std. Deviation |
|-------|------|-------|----------------|
| Total | 1640 | 2.207 | 1.053          |

1) Strongly agree 303 18.5

2) Agree 1020 62.2

3) Disagree 136 8.3

4) Strongly disagree 36 2.2

5) Undecided 145 8.8

Missing 81

370) Q74D

Q74 To what extent do you agree or disagree with the following statements..d. It is possible to influence the physical world through the mind alone

RANGE: 1 to 5

|                      | N    | Mean  | Std. Deviation |
|----------------------|------|-------|----------------|
| Total                | 1634 | 3.218 | 1.179          |
| 1) Strongly agree    | 80   | 4.9   |                |
| 2) Agree             | 401  | 24.5  |                |
| 3) Disagree          | 589  | 36.0  |                |
| 4) Strongly disagree | 210  | 12.9  |                |
| 5) Undecided         | 354  | 21.7  |                |
| Missing              | 87   |       |                |

371) Q74E

Q74 To what extent do you agree or disagree with the following statements..e. Astrologers, palm-readers, tarot card readers, fortune tellers, and psychics can foresee the future

RANGE: 1 to 5

|                      | N    | Mean  | Std. Deviation |
|----------------------|------|-------|----------------|
| Total                | 1643 | 3.537 | 0.913          |
| 1) Strongly agree    | 22   | 1.3   |                |
| 2) Agree             | 172  | 10.5  |                |
| 3) Disagree          | 592  | 36.0  |                |
| 4) Strongly disagree | 615  | 37.4  |                |
| 5) Undecided         | 242  | 14.7  |                |
| Missing              | 78   |       |                |

372) Q74F

Q74 To what extent do you agree or disagree with the following statements..f. Astrology impacts one's life and personality

RANGE: 1 to 5

|                      | N    | Mean  | Std. Deviation |
|----------------------|------|-------|----------------|
| Total                | 1630 | 3.478 | 0.944          |
| 1) Strongly agree    | 28   | 1.7   |                |
| 2) Agree             | 203  | 12.5  |                |
| 3) Disagree          | 597  | 36.6  |                |
| 4) Strongly disagree | 566  | 34.7  |                |
| 5) Undecided         | 236  | 14.5  |                |
| Missing              | 91   |       |                |

373) Q74G

Q74 To what extent do you agree or disagree with the following statements..g. It is possible to communicate with the dead

RANGE: 1 to 5

|                   | N    | Mean  | Std. Deviation |
|-------------------|------|-------|----------------|
| Total             | 1638 | 3.485 | 1.052          |
| 1) Strongly agree | 48   | 2.9   |                |

|                      |     |      |  |
|----------------------|-----|------|--|
| 2) Agree             | 253 | 15.4 |  |
| 3) Disagree          | 498 | 30.4 |  |
| 4) Strongly disagree | 534 | 32.6 |  |
| 5) Undecided         | 305 | 18.6 |  |
| Missing              | 83  |      |  |

## 374) Q74H

Q74 To what extent do you agree or disagree with the following statements..h. Places can be haunted

RANGE: 1 to 5

|                      | N    | Mean  | Std. Deviation |
|----------------------|------|-------|----------------|
| Total                | 1637 | 3.135 | 1.174          |
| 1) Strongly agree    | 83   | 5.1   |                |
| 2) Agree             | 514  | 31.4  |                |
| 3) Disagree          | 408  | 24.9  |                |
| 4) Strongly disagree | 363  | 22.2  |                |
| 5) Undecided         | 269  | 16.4  |                |
| Missing              | 84   |       |                |

## 375) Q74I

Q74 To what extent do you agree or disagree with the following statements..i. Dreams sometimes foretell the future or reveal hidden truths

RANGE: 1 to 5

|                      | N    | Mean  | Std. Deviation |
|----------------------|------|-------|----------------|
| Total                | 1641 | 2.847 | 1.244          |
| 1) Strongly agree    | 138  | 8.4   |                |
| 2) Agree             | 724  | 44.1  |                |
| 3) Disagree          | 305  | 18.6  |                |
| 4) Strongly disagree | 199  | 12.1  |                |
| 5) Undecided         | 275  | 16.8  |                |
| Missing              | 80   |       |                |

## 376) Q74J

Q74 To what extent do you agree or disagree with the following statements. j. Some UFOs are probably spaceships from other worlds

RANGE: 1 to 5

|                      | N    | Mean  | Std. Deviation |
|----------------------|------|-------|----------------|
| Total                | 1633 | 3.516 | 1.192          |
| 1) Strongly agree    | 60   | 3.7   |                |
| 2) Agree             | 330  | 20.2  |                |
| 3) Disagree          | 396  | 24.2  |                |
| 4) Strongly disagree | 401  | 24.6  |                |
| 5) Undecided         | 446  | 27.3  |                |
| Missing              | 88   |       |                |

## 377) Q74K

Q74 To what extent do you agree or disagree with the following statements..k. Creatures such as Bigfoot and the Loch Ness Monster will one day be discovered by science

RANGE: 1 to 5

|                      | N    | Mean  | Std. Deviation |
|----------------------|------|-------|----------------|
| Total                | 1646 | 3.581 | 1.108          |
| 1) Strongly agree    | 45   | 2.7   |                |
| 2) Agree             | 233  | 14.2  |                |
| 3) Disagree          | 530  | 32.2  |                |
| 4) Strongly disagree | 396  | 24.1  |                |
| 5) Undecided         | 442  | 26.9  |                |
| Missing              | 75   |       |                |

## Appendix B: Figures

*Figure 1: Demographics*

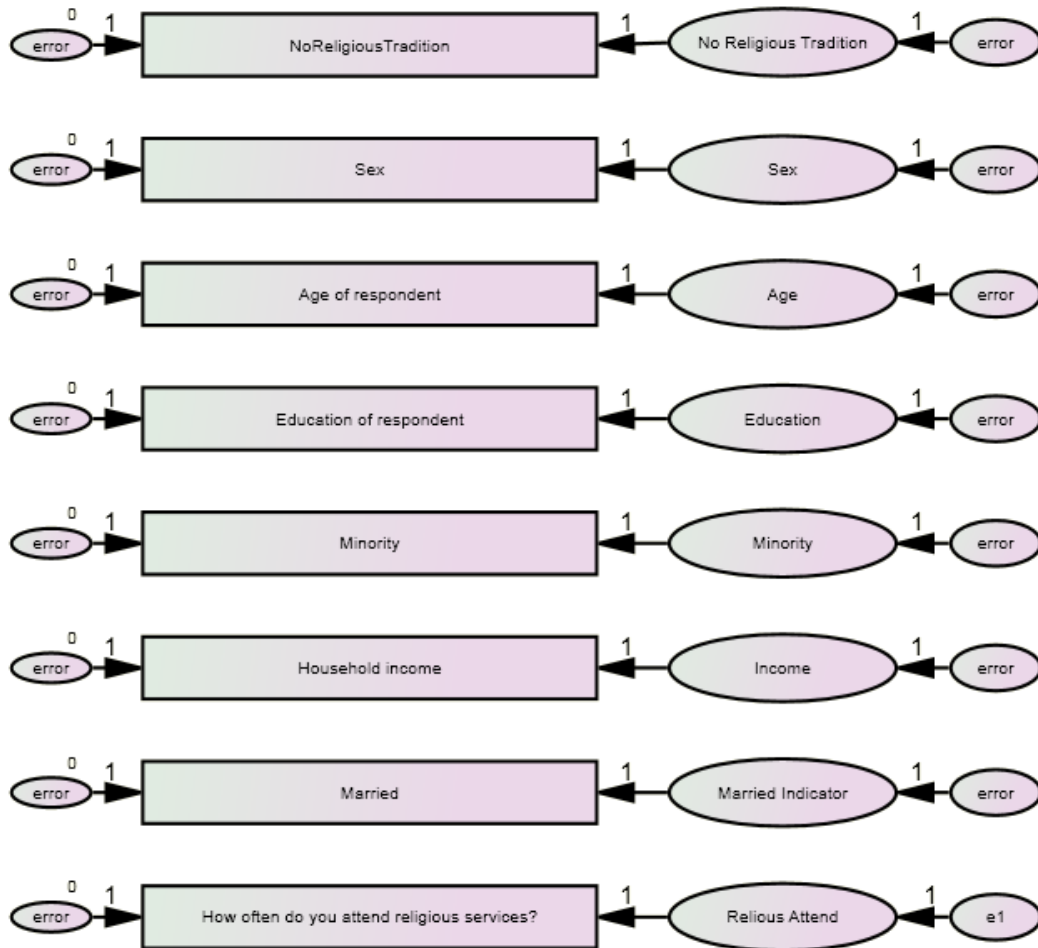


Figure 2: Measurement Model for Religious Paranormal Belief

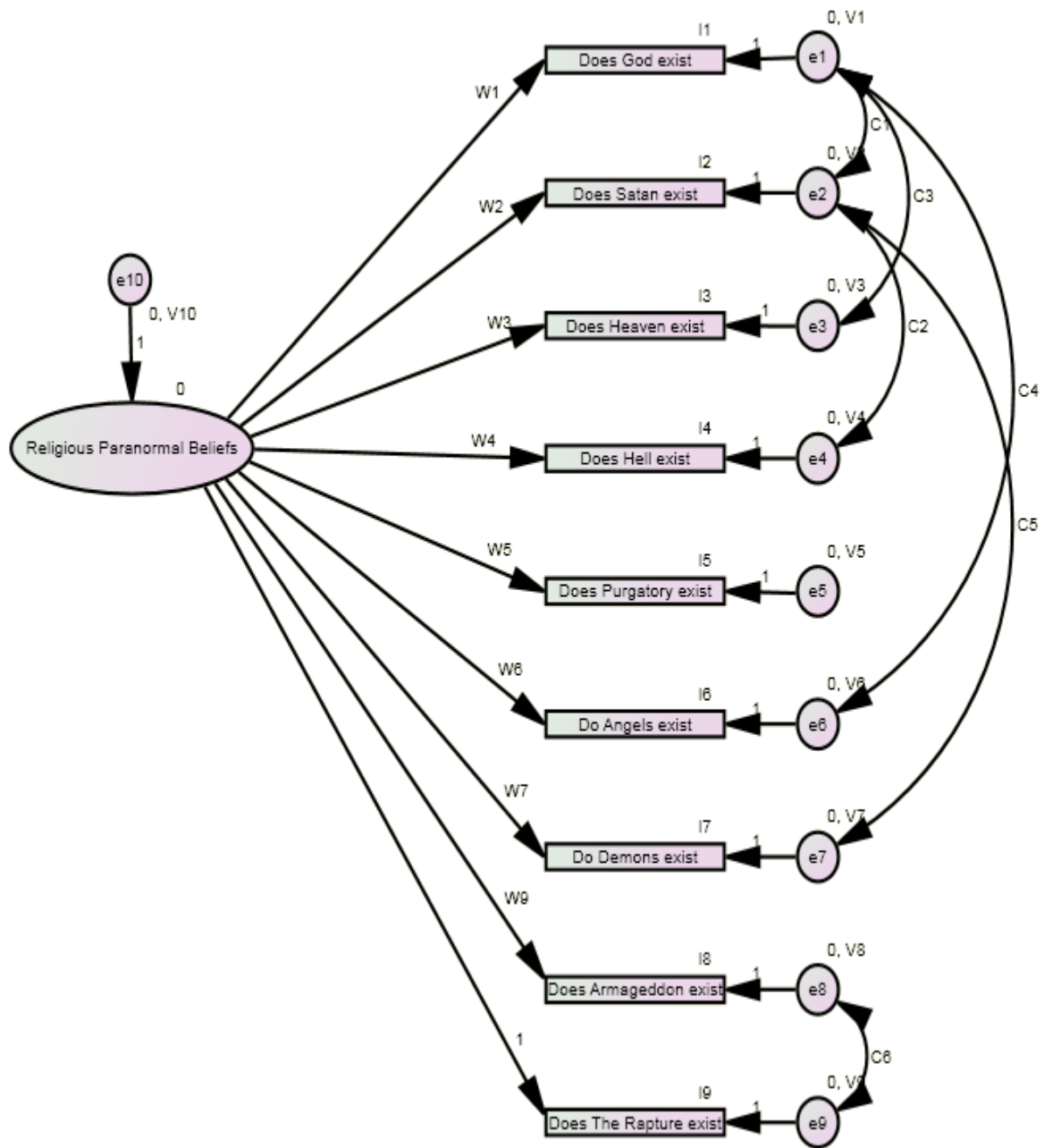
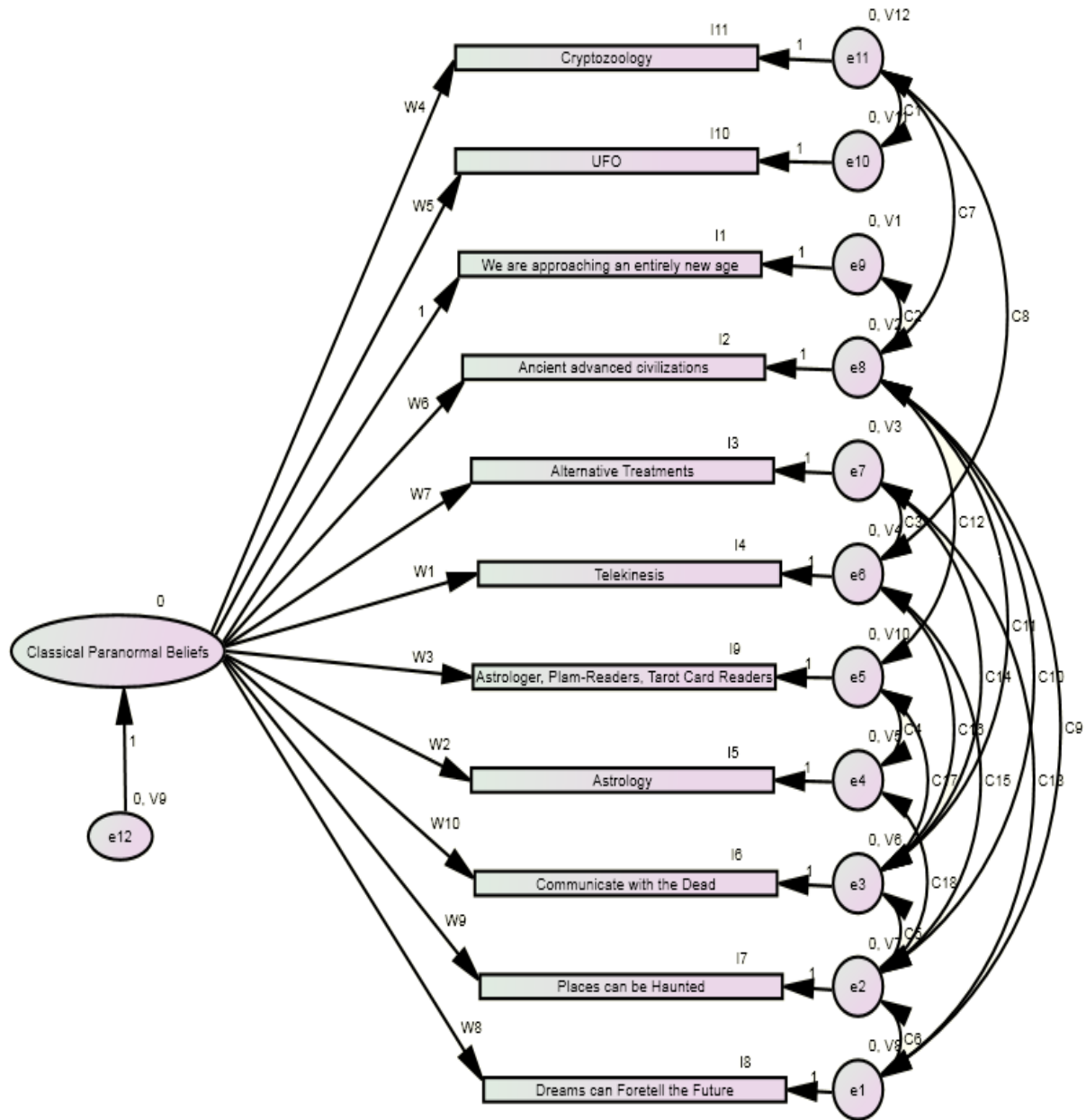




Figure 3: Measurement Model for Classical Paranormal Belief



: Measurement Model for Church Involvement

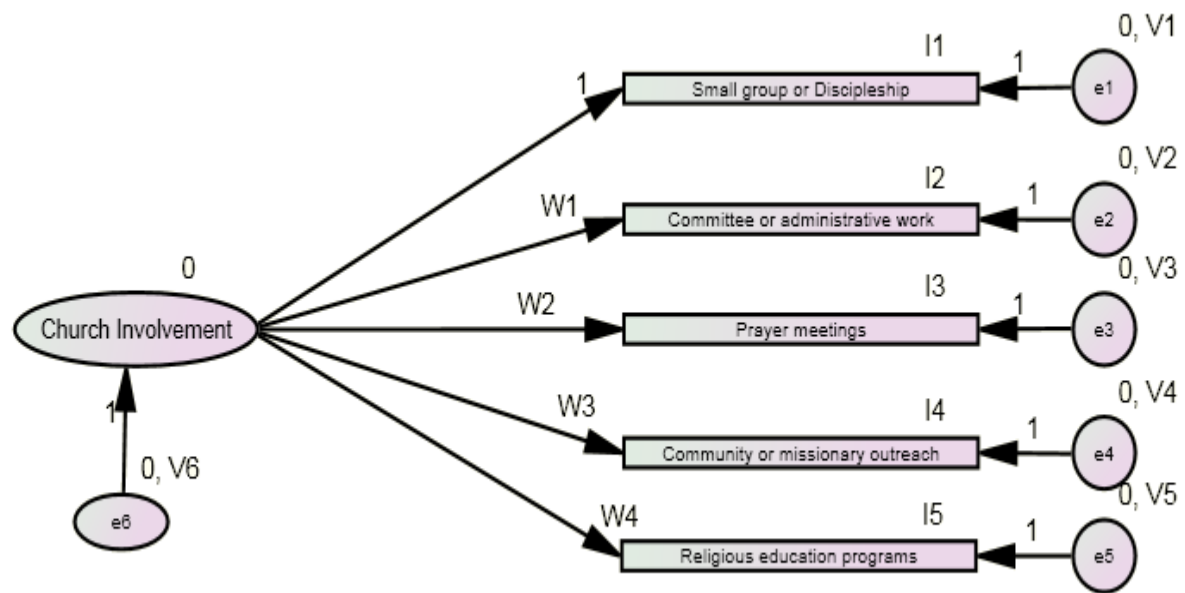
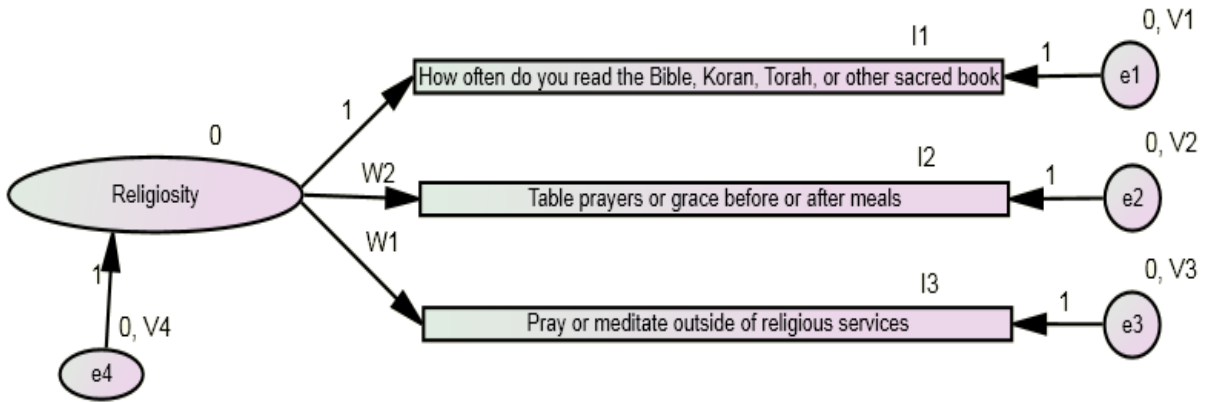
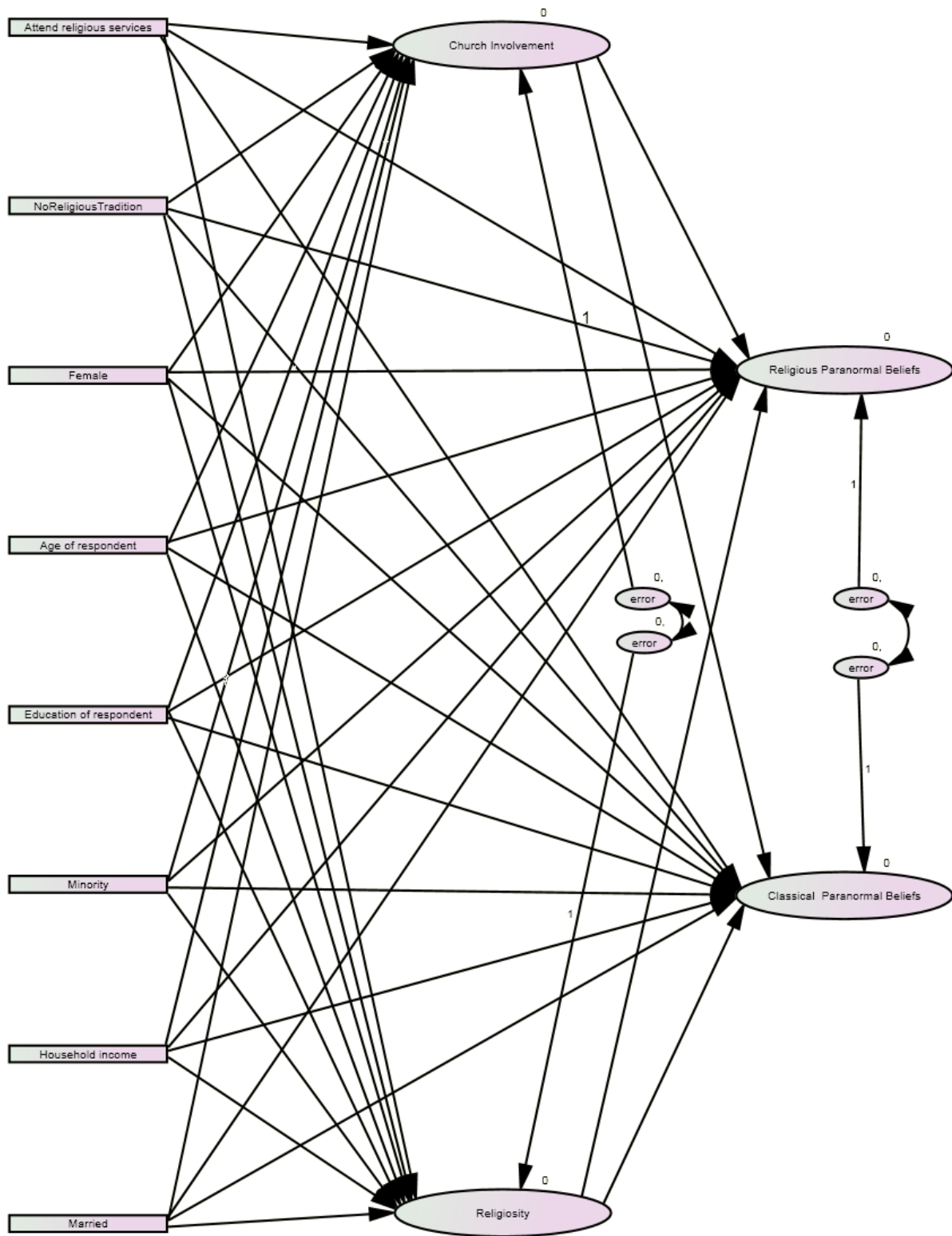


Figure 4: Measurement Model for Religiosity



**Figure 5: Structural Model: Paranormal Beliefs - Mediation by Religiosity and Church Involvement (Not in JKL)**



### Appendix C: Tables

**Table 1: Summary of Major Literature on Paranormal Belief**

| Study                         | Sample                                      | Study Design  | Measures   | Primary Findings  |
|-------------------------------|---|---|--|---|
| Mencken, Bader and Kim (2009) | $N = 1,721$ adults across America.          | The Baylor Religion Survey, a national random sample collected by the Gallup Organization in fall 2005.                 | A questionnaire contained a standard core of demographic and social measurements of religious conceptualization. The individual measures are the same as the current study.  | Negative relationships between SES measures (education/income) and paranormal beliefs. A lack of any bivariate relationship between Classical and Religious paranormal belief. Church attendance and religiosity have to be controlled for when measuring paranormal belief.  |
| Rice (2003)                   | $N = 1,255$ adults across southern America. | The 1998 Southern Focus Poll (SFP) was based on random dialed telephone interviews with adults across southern America. | Standard demographic questions. Three questions ask about traditional Christian dogma (heaven and hell, the devil, and God answers prayers) and the other seven inquire about classic paranormal phenomenal (astrology déjà vu, ESP, extraterrestrials, ghosts, psychic healing, and reincarnation) (p. 98). | People who are routinely marginalized, such as African Americans, the poor, and the less educated, are often no more likely than other people to believe in classic paranormal phenomena. And, where there are significant correlations between social variables and classic paranormal beliefs, they regularly run counter to the expectations of the theory. For example, better-educated people are significantly more likely to believe in ESP, psychic healing, and déjà vu. The deprivation theory does a somewhat better job of explaining the social correlates of religious paranormal beliefs, but even here many of the expected relationships did not materialize in the SFP data (pp. 104-105) |

|                  |  |   |  |  |
|------------------|--|---|--|--|
| Orenstein (2002) | <i>N</i> = 1,765 adults within Canada. | Reginald Bibby's 1995 Project Canada poll was selected randomly from telephone directories in 228 communities that were stratified by province and by community size. | The survey consisted of a 20 page document covering social issues, intergroup relations, and religion. Respondents were asked if they believe in: 1. Heaven, 2. Hell, 3. Angels, 4. God, 5. That you have experienced God's presence 6. Life after death. Respondents were asked: "Do you believe in the following?" Here is the exact wording: 1. ESP, 2. That some people have psychic powers, 3. That you have experienced an event before it happened, 4. Astrology, 5. That it's possible to communicate with the dead, 6. That you will be reincarnated (pp. 303-304). | To summarize the major findings of this research: (1) people who do not report a religious preference are no more likely than others to believe in paranormal phenomena; (2) people who believe in conventional religious teachings are more likely to believe in the paranormal; (3) people who attend church frequently are less likely to believe in paranormal phenomena though the zero-order relationship is weak; (4) both the positive effect of conventional religious belief and the negative effect of church attendance are increased when the other variable is statistically controlled, with the effect on church attendance being stronger; (5) a variety of measures of religious participation all show the same pattern of effects as church attendance; (6) there appears to be something specific about religious participation, and not organizational participation in general, that is reducing paranormal belief; (7) the positive effect of religious belief and the negative effect of religious participation remain when other background characteristics are statistically controlled and (8) religious belief has a stronger association with paranormal belief than does religious participation ( pp. 308-309). |
|------------------|--|---|--|--|

|                           |                                 |  |  |  |
|---------------------------|---------------------------------|--|--|--|
| Emmons and Sobal's (1981) | N = 1553 adults within America. | The 1978 Gallup poll's standardized personal interviews in their residence.                          | The concept of belief in paranormal phenomena was indicated by a question asking respondents, "Which of the following do you believe in?" and presenting them with a card listing: ghosts, the Loch Ness Monster, Sasquatch, ESP, witches, déjà vu, precognition, astrology, angels, devils, life after death, and clairvoyance. A yes or no response was recorded for each. Belief in religious (fundamentalist) types of phenomena was shown by their positive response to angels, devils, and life after death, while nonreligious paranormal belief was seen in their positive responses. to the remainder of the list. No measure of church attendance was available in the survey. Demographics were assessed with direct standardized questions about age, education, and marital status. Sex of the respondent was recorded by the interviewer without asking (p. 303) | .... generally support the functional alternative hypothesis that (fundamental) religion is positively associated with belief in religious paranormal phenomena but negatively associated with belief in nonreligious paranormal phenomena. ... nonreligious paranormal beliefs tend to correlate negatively and the religious paranormal beliefs positively with the religion variables ... all 12 of the beliefs correlate positively with each other, even if only slightly. That is, it cannot be argued that any of the beliefs are antithetical to any of the others (p. 310). |
| Greeley's (1975)          | N = 1504 adults within America. | The 1973 National Opinion Research Center General Social Survey by University of Chicago's interview | A standard core of demographic and attitudinal variables, plus certain topics of special interest selected for rotation (called "topical modules"). Measure included déjà vu, extrasensory perception and clairvoyance, contact with the dead and mystical experiences.  | The elderly, women, widows and widowers, and the conventionally religious report higher incidents of paranormal experiences.   |

**Table 2: Unstandardized Regression Weights - Religious Paranormal Beliefs**

|                        |      |                              | Estimate | S.E.  | C.R.    | P   |
|------------------------|------|------------------------------|----------|-------|---------|-----|
| Does God exist         | <--- | Religious Paranormal Beliefs | .7755    | .0260 | 29.8679 | *** |
| Does Satan exist       | <--- | Religious Paranormal Beliefs | 1.1812   | .0348 | 33.9010 | *** |
| Does Heaven exist      | <--- | Religious Paranormal Beliefs | 1.0753   | .0310 | 34.6666 | *** |
| Does Hell exist        | <--- | Religious Paranormal Beliefs | 1.2051   | .0349 | 34.5092 | *** |
| Does Purgatory exist   | <--- | Religious Paranormal Beliefs | .5924    | .0346 | 17.1259 | *** |
| Do Angels exist        | <--- | Religious Paranormal Beliefs | 1.0917   | .0319 | 34.1715 | *** |
| Do Demons exist        | <--- | Religious Paranormal Beliefs | 1.1006   | .0351 | 31.3206 | *** |
| Does The Rapture exist | <--- | Religious Paranormal Beliefs | 1.0000   |       |         |     |
| Does Armageddon exist  | <--- | Religious Paranormal Beliefs | .9826    | .0224 | 43.9211 | *** |

**Table 3: Standardized Regression Weights - Religious Paranormal Beliefs**

|                        |      |                              | Estimate |
|------------------------|------|------------------------------|----------|
| Does God exist         | <--- | Religious Paranormal Beliefs | .7773    |
| Does Satan exist       | <--- | Religious Paranormal Beliefs | .8870    |
| Does Heaven exist      | <--- | Religious Paranormal Beliefs | .9065    |
| Does Hell exist        | <--- | Religious Paranormal Beliefs | .9028    |
| Does Purgatory exist   | <--- | Religious Paranormal Beliefs | .4413    |
| Do Angels exist        | <--- | Religious Paranormal Beliefs | .8922    |
| Do Demons exist        | <--- | Religious Paranormal Beliefs | .8152    |
| Does The Rapture exist | <--- | Religious Paranormal Beliefs | .7028    |
| Does Armageddon exist  | <--- | Religious Paranormal Beliefs | .7163    |

**Table 4: Covariances - Religious Paranormal Beliefs**

|         |    | Estimate | S.E.  | C.R.    | P   |
|---------|----|----------|-------|---------|-----|
| e1 <--> | e2 | .0306    | .0045 | 6.7673  | *** |
| e2 <--> | e4 | .1002    | .0082 | 12.2682 | *** |
| e1 <--> | e3 | .0935    | .0065 | 14.3851 | *** |
| e1 <--> | e6 | .0540    | .0058 | 9.3212  | *** |
| e2 <--> | e7 | .0633    | .0078 | 8.1314  | *** |
| e8 <--> | e9 | .3676    | .0190 | 19.3394 | *** |



**Table 5: Regression Weights - Classical Paranormal Beliefs**

|   |      |                              | Estimate | S.E.  | C.R.    | P   |
|---|------|------------------------------|----------|-------|---------|-----|
| We are approaching an entirely new age      | <--- | Classical Paranormal Beliefs | 1.0000   |       |         |     |
| Ancient advanced civilizations              | <--- | Classical Paranormal Beliefs | 1.6318   | .1526 | 10.6966 | *** |
| Alternative Treatments                      | <--- | Classical Paranormal Beliefs | .8433    | .0964 | 8.7491  | *** |
| Telekinesis                                 | <--- | Classical Paranormal Beliefs | 1.8018   | .1721 | 10.4671 | *** |
| Astrology                                   | <--- | Classical Paranormal Beliefs | 1.9020   | .1750 | 10.8707 | *** |
| Communicate with the Dead                   | <--- | Classical Paranormal Beliefs | 2.4835   | .2239 | 11.0904 | *** |
| Places can be Haunted                       | <--- | Classical Paranormal Beliefs | 2.6249   | .2389 | 10.9890 | *** |
| Dreams can Foretell the Future              | <--- | Classical Paranormal Beliefs | 1.9300   | .1818 | 10.6176 | *** |
| Astrologer, Pam-Readers, Tarot Card Readers | <--- | Classical Paranormal Beliefs | 1.9630   | .1783 | 11.0086 | *** |
| UFO   | <--- | Classical Paranormal Beliefs | 2.0321   | .1873 | 10.8507 | *** |
| Cryptozoology                               | <--- | Classical Paranormal Beliefs | 1.7432   | .1642 | 10.6177 | *** |

**Table 6: Standardized Regression Weights - Classical Paranormal Beliefs**

|   |      |                              | Estimate |
|---|------|------------------------------|----------|
| We are approaching an entirely new age      | <--- | Classical Paranormal Beliefs | .2965    |
| Ancient advanced civilizations              | <--- | Classical Paranormal Beliefs | .5430    |
| Alternative Treatments                      | <--- | Classical Paranormal Beliefs | .3438    |
| Telekinesis                                 | <--- | Classical Paranormal Beliefs | .5842    |
| Astrology                                   | <--- | Classical Paranormal Beliefs | .6449    |
| Communicate with the Dead                   | <--- | Classical Paranormal Beliefs | .7787    |
| Places can be Haunted                       | <--- | Classical Paranormal Beliefs | .7551    |
| Dreams can Foretell the Future              | <--- | Classical Paranormal Beliefs | .5850    |
| Astrologer, Pam-Readers, Tarot Card Readers | <--- | Classical Paranormal Beliefs | .6902    |
| UFO   | <--- | Classical Paranormal Beliefs | .6279    |
| Cryptozoology                               | <--- | Classical Paranormal Beliefs | .5836    |

**Table 7: Covariances - Classical Paranormal Beliefs**

|                    | Estimate | S.E.  | C.R.    | P     |
|--------------------|----------|-------|---------|-------|
| deta10 <--> deta11 | .2427    | .0238 | 10.1870 | ***   |
| deta9 <--> deta8   | .1365    | .0289 | 4.7208  | ***   |
| deta7 <--> deta6   | .0996    | .0209 | 4.7678  | ***   |
| deta4 <--> deta5   | .2491    | .0196 | 12.6969 | ***   |
| deta3 <--> deta2   | .0812    | .0253 | 3.2079  | .0013 |
| deta2 <--> deta1   | .0901    | .0258 | 3.4973  | ***   |
| deta8 <--> deta11  | .0716    | .0222 | 3.2209  | .0013 |
| deta6 <--> deta11  | -.0943   | .0209 | -4.5082 | ***   |
| deta8 <--> deta1   | -.0948   | .0255 | -3.7139 | ***   |
| deta8 <--> deta2   | -.1129   | .0281 | -4.0174 | ***   |
| deta8 <--> deta3   | -.1182   | .0247 | -4.7868 | ***   |
| deta8 <--> deta5   | -.0528   | .0181 | -2.9207 | .0035 |
| deta7 <--> deta1   | .1003    | .0210 | 4.7744  | ***   |
| deta7 <--> deta3   | -.0632   | .0167 | -3.7765 | ***   |
| deta6 <--> deta2   | -.1768   | .0253 | -6.9855 | ***   |
| deta6 <--> deta3   | -.0866   | .0227 | -3.8146 | ***   |
| deta3 <--> deta5   | .0789    | .0169 | 4.6781  | ***   |
| deta4 <--> deta2   | -.0536   | .0188 | -2.8500 | .0044 |

**Table 8: Regression Weights - Church Involvement**

|  | Estimate | S.E.   | C.R.    | P   |
|--|----------|--------|---------|-----|
| Prayer meetings <--- Church Involvement                  | 1.1871   | 0.0434 | 27.3513 | *** |
| Community or missionary outreach <--- Church Involvement | 0.9489   | 0.0375 | 25.3066 | *** |
| Committee or administrative work <--- Church Involvement | 0.9123   | 0.0378 | 24.1231 | *** |
| Small group or Discipleship <--- Church Involvement      | 1        |        |         |     |
| Religious education programs <--- Church Involvement     | 1.727    | 0.0608 | 28.386  | *** |

**Table 9: Standardized Regression Weights - Church Involvement**

|  | Estimate |
|--|----------|
| Prayer meetings <--- Church Involvement                  | 0.7482   |
| Community or missionary outreach <--- Church Involvement | 0.6845   |
| Committee or administrative work <--- Church Involvement | 0.6497   |
| Small group or Discipleship <--- Church Involvement      | 0.7126   |
| Religious education programs <--- Church Involvement     | 0.7851   |

**Table 10: Regression Weights - Religiosity**

|  | Estimate | S.E.  | C.R.    | P   |
|--|----------|-------|---------|-----|
| Pray or meditate outside of religious services <--- Religiosity                      | .5528    | .0196 | 28.1629 | *** |
| Table prayers or grace before or after meals <--- Religiosity                        | .3897    | .0141 | 27.6790 | *** |
| How often do you read the Bible, Koran, Torah, or other sacred book <--- Religiosity | 1.0000   |       |         |     |

**Table 11: Standardized Regression Weights -Religiosity**

|   |      |             | Estimate |
|---|------|-------------|----------|
| Pray or meditate outside of religious services                      | <--- | Religiosity | .7627    |
| Table prayers or grace before or after meals                        | <--- | Religiosity | .7337    |
| How often do you read the Bible, Koran, Torah, or other sacred book | <--- | Religiosity | .8309    |

**Table 12: Squared Multiple Correlations of Structural Model**

| <b>Squared Multiple Correlations: Structural Model</b> |        |
|--|--------|
| Church Involvement                                     | 0.7759 |
| Religiosity  | 0.4708 |
| Religious Paranormal Beliefs                           | 0.6304 |
| Classical Paranormal Beliefs                           | 0.8235 |

**Table 13: Latent Factor Correlations**

| <b>Latent Factor Correlations</b> |      |                              |        |
|-----------------------------------|------|------------------------------|--------|
| Church Involvement                | <--> | Religiosity                  | 0.6797 |
| Religious Paranormal Beliefs      | <--> | Classical Paranormal Beliefs | 0.1388 |

**Table 14: Standardized Effects - Church Involvement**

| <b>Standardized Effects of Indicators on Church Involvement</b> |         |
|---|---------|
| Religious Attendance  | 0.3880  |
| No Religious Tradition  | 0.0649  |
| Married Indicator   | -0.0032 |
| Education   | -0.002  |
| Age   | -0.0054 |
| Sex   | -0.7854 |
| Income  | -0.0589 |
| Race Indicator  | 0.0269  |

**Table 15: Standardized Effects - Religiosity**

| <b>Standardized Effects of Indicators on Religiosity</b> |         |
|--|---------|
| Religious Attendice                                      | 0.6333  |
| No Religious Tradition                                   | -0.148  |
| Married Indicator  | 0.0231  |
| Education  | -0.0086 |
| Age  | -0.011  |
| Sex  | 0.0887  |
| Income   | -0.174  |
| Race Indicator   | 0.0946  |

**Table 16: Standardized Effects - Classical Paranormal Beliefs**

| <b>Standardized Effects of Indicators on Classical Paranormal Beliefs</b> |               |                |                  |
|---|---------------|----------------|------------------|
|   | Total Effects | Direct Effects | Indirect Effects |
| Religious Attendance  | -0.0953       | 0.0180         | -0.1133          |
| No Religious Tradition  | -0.0711       | -0.0371        | -0.034           |
| Church Involvement  | -0.3885       | -0.3885        | 0                |
| Religiosity   | 0.0591        | 0.0591         | 0                |
| Education   | -0.0087       | -0.0090        | 0.0003           |
| Age   | -0.0555       | -0.0569        | 0.0014           |
| Married Indicator   | -0.0007       | -0.0033        | 0.0026           |
| Sex   | 0.8828        | 0.5724         | 0.3104           |
| Income  | 0.0091        | -0.0035        | 0.0126           |
| Race Indicator  | 0.0433        | 0.0482         | -0.0049          |

**Table 17: Standardized Effects - Religious Paranormal Beliefs**

| <b>Standardized Effects of Indicators on Religious Paranormal Beliefs</b> |               |                |                  |
|---|---------------|----------------|------------------|
|   | Total Effects | Direct Effects | Indirect Effects |
| Religious Attendance  | 0.2990        | 0.1065         | 0.1925           |
| No Religious Tradition  | -0.3727       | -0.2217        | -0.1511          |
| Church Involvement  | -0.6820       | -0.6820        | 0                |
| Religiosity   | 0.7218        | 0.7218         | 0                |
| Education   | -0.1782       | -0.1734        | -0.0048          |
| Age   | -0.1112       | -0.1069        | -0.0043          |
| Married Indicator   | 0.0452        | 0.0263         | 0.0189           |
| Sex   | 0.4324        | -0.1673        | 0.5997           |
| Income  | -0.1301       | -0.0447        | -0.0854          |
| Race Indicator  | 0.0504        | 0.0005         | 0.0499           |

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