

# **Paranormal beliefs, religious beliefs and personality correlates**

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U.K.

# PARANORMAL BELIEFS, RELIGIOUS BELIEFS AND PERSONALITY CORRELATES

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*This study showed that religious beliefs and paranormal beliefs are indeed associated, confirming initial exploratory studies that suggested some kind of relationship between the two (Goode, 2000; Haraldsson, 1981). The other mixed results reflect the need for further research in both religiosity and in particular paranormal beliefs to see if a consistent pattern of results may emerge.*

Dedicated to Paul Ricoeur, 1913-2005, who past away during the last weeks of finishing this article.



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and to all the volunteers who took part in this study.

## ABSTRACT

Previous studies have investigated the personality correlates of both paranormal beliefs and religious beliefs finding Neuroticism (Thalbourne, Dunbar and Delin, 1995) and Extraversion associated with the former (Thalbourne, 1981; Eysenck, 1967; Thalbourne and Haraldsson, 1980) and low Psychoticism (Agreeableness and Conscientiousness in the Five Factor Model) associated with the latter (see the meta-analysis by Saroglou, 2002). The present study sought to replicate and extend previous research by examining not just the personality correlates of the two but the relationship between paranormal beliefs and religiosity also. This was performed using the NEO-PI-R (Costa and McCrae, 1978, 1992, 1995), the Revised Paranormal Belief Scale (RPBS; Tobayck, 1988) and using for the first time with a UK sample, the Post-Critical Belief Scale (PCBS) developed by Hutsebaut and his colleagues to measure religiosity (1996, 1997, 2000). The internal consistency of the PCBS was found to be more than adequate (Cronbach's Alpha of 0.77) for this sample ( $N = 65$ ). A significant relationship between paranormal beliefs and religiosity was found with the belief in a transcendent reality forwarded as a possible underlying explanation for this result. With regard to personality factors, only Conscientiousness was significantly (negatively) correlated with paranormal beliefs – a contrast to the previous studies mentioned, while Agreeableness was positively correlated with religiosity providing partial support for previous studies that have found Psychoticism associated with it, as highlighted in the meta-analysis by Saroglou (2002). Previous studies had also indicated gender differences with respect to paranormal beliefs with females showing greater endorsement (Clarke, 1991; Rice, 2003; Tobayck and Milford, 1983). However, no significant differences were found in this study.

**Keywords:** Religiosity, Personality, Five factor model, Post critical Belief-scale, paranormal beliefs.

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# 1. INTRODUCTION

Surveys, such as the one conducted in 1996 by Gallup of a nationally representative sample of Americans, continue to show a high degree of belief, interest and involvement in a variety of paranormal and religious related phenomena among the general population. For example, 48 percent believed in the possibility of extra-sensory perception (ESP), 45 percent believe that unidentified flying objects (UFOs) have already visited Earth, and 56 and 72 per cent believed in the reality of the devil and angels, respectively (Gallup, 1997). In fact, these numbers have actually gone up since the surveys first started (Gallup and Newport, 1991) and other surveys amongst university and college students have yielded similar results (e.g. Messer and Griggs, 1989). Perhaps due to the widespread existence of such beliefs, the investigation of personality correlates of paranormal and particularly religious belief has received considerable attention in recent years, but little attention was given to both simultaneously. This study intends to provide a first exploratory look at the relationships between paranormal beliefs, religious beliefs and personality correlates.

## 1.1 PARANORMAL BELIEFS AND PERSONALITY

The term *paranormal* is used to describe phenomena, which - if authentic - violate basic limiting principles of science (Broad, 1949; Tobayck, 1995). The question of why so many people, including the well educated, believe in the possibility of such phenomena has perplexed the scientific community and as such the investigation of individual differences in the belief in the paranormal has been a prominent avenue of psychological inquiry.

Early studies into paranormal beliefs rendered a most negative view on believers, emphasising deficiencies in intelligence, education and personality (Emme, 1940; Lundeen and Caldwell, 1930). However, these early studies tended to focus on simple superstitions compared with the

recent research focus on more complex and sophisticated phenomena such as ESP, psychokinesis and precognition (Boshier, 1973; Irwin, 1993). Also, some research has indicated that beliefs in the paranormal are associated with higher rather than lower education and intelligence (McGarry and Newberry, 1981). Other findings suggest that belief in paranormal phenomena is not associated with the rejection of mainstream science or technology, at least among college and university students (Schouten, 1983).

Two areas that have received a lot of attention in relation to paranormal beliefs have been locus of control and psychopathology. The connection between paranormal beliefs and feelings of control were proposed as far back as the 1940's by Malinowski (1948), with these beliefs serving as a kind of illusion of control (Langer, 1975). Early research demonstrated a relationship between a more external locus of control and greater belief in paranormal phenomena (e.g. Tobayck & Milford, 1983). However, the results from the global measurements of paranormal belief and locus of control have been shown questionable. This was due to the measurement tools (or scales), which included both forms of paranormal belief implying a belief in fate and lack of control (e.g. superstitions, spiritualism) and forms suggesting that the world can be changed by one's own will (e.g. psi, psychokinesis). Therefore, it was suggested that superstition and spiritualism should correlate positively, and psi belief should correlate negatively with external locus of control (Wolfradt, 1997). Indeed, taking this multi-dimensional approach, significant relationships between externality in personal and socio-political control and belief in religion, superstitions and spiritualism have been found. Similarly, a significant relationship between internality in personal and interpersonal control and belief in psi has also been found (Davies and Kirkby, 1985).

The other correlate that has received much attention with respect to paranormal beliefs is psychopathology and in particular 'magical thinking' (as seen in psychokinesis), which is among the defined symptoms of some psychiatric disorders like schizotypal personality disorder in the DSM-IV (American Psychiatric Association, 1994). It has been found that those who



scored highest on magical thinking showed a predisposition to psychosis (Eckblad and Chapman, 1983). Research has also shown that paranormal beliefs are significantly and positively correlated with schizotypy (Thalbourne, 1994; Chequers, Joseph and Diduca, 1997) and with manic-depressive experiences (Thalbourne and French, 1995).

As can be seen there are various forms of paranormal belief. Here the individual is heavily influenced by cultural factors, such as family, peer group processes, dissemination of paranormal concepts in the media and formal persuasion by social institutions, e.g. the church (Schriever, 2000). Socialisation has been one of the reasons used to explain gender differences concerning the extent of paranormal beliefs. Females express greater global paranormal belief than males (Irwin, 1993; Rice, 2003), although men express greater belief in UFOs and extraterrestrials (e.g. Rice, 2003). Blackmore (1994) speculated that males were socialised to take more interest in science, while females were socialised to be better informed about religious issues, implicating women's richer fantasy life as possible explanations for gender differences. Furthermore, a study by Lester, Thinschmidt and Trautman (1987) reported that precognition experience and paranormal belief were directly related to feeling and intuition scores, supporting the view that believers tend to be less logical, more open-minded and prone to fantasy than non-believers.

All this may suggest that (strong) believers in paranormal phenomena may be maladjusted in some form or another, but the evidence with respect to personality dimensions is decidedly mixed. Early research with regard to personality and religiosity used Eysenck's three-dimensional model of personality, based on the underlying factors of Psychoticism, Extraversion and Neuroticism (PEN) (Eysenck and Eysenck, 1968, 1985), whereas newer research used the Five Factor Model (FFM) introduced by Costa and McCrae (1978, 1992, 1995). The FFM can be thought of as an extension to Eysenck's model with Agreeableness and Conscientiousness, now providing a two dimensional view of Psychoticism (Digman, 1997; McCrae, 1996b) and Openness to Experience constituting a new element (Costa and McCrae,

1995). This model claims to represent the basic factors organising human traits (Saucier and Goldberg, 1998). Bearing this in mind, Thalbourne, Dunbar and Delin (1995) found a significant positive relationship between paranormal beliefs (specifically belief in psi, witchcraft, spiritualism, precognition and traditional religion) and Neuroticism using the revised Paranormal Belief Scale (RPBS), whereas other researchers (Lester and Monaghan, 1995; Willging and Lester, 1997) have found no such relationship. In a similar way, anxiety showed a close relation with paranormal beliefs in some studies (Okebukola, 1986; Wagner and Ratzeburg, 1987), but it didn't in others (Tobayck, 1982). A more recent study has reported significant relationships between paranormal beliefs, trait anxiety and dissociative experiences (Wolfradt, 1997), which mirrors findings of previous studies (Irwin, 1994; Pekala, Kumar and Marcano, 1995).

It is postulated that paranormal beliefs serve the same function as dissociative experiences, i.e. creating a distance from reality (of a situation or experience) as a defence mechanism (Wolfradt, 1997). Similarly, fantasy proneness - correlated with paranormal beliefs- is also believed to serve this function (Irwin, 1990). Even so, a low but significant correlation has been found between paranormal belief and irrational thinking (Tobayck and Milford, 1983; Roig, Bridges, Renner and Jackson, 1997).

One personality factor that would have been thought related to paranormal belief is Openness to Experience, as individuals scoring high in this factor may be characterised by a particularly permeable structure of consciousness, as well as an active motivation to seek out the unfamiliar. This goes hand in hand with tolerance of ambiguity and open-mindedness and leads those high in Openness to Experience to endorse liberal political and social values, because questioning conventional values is a natural extension of their curiosity (McCrae, 1996a). However, currently there is little or no support for this hypothesis (Thalbourne, Dunbar and Delin, 1995; Lester and Monaghan, 1995; Willging and Lester, 1997).

Perhaps the strongest evidence relating personality correlates and paranormal beliefs has come from empirical studies showing Extraversion to be a salient correlate of paranormal belief. The prime example is the study of Thalbourne (1981), who discovered that individuals with higher paranormal belief scores (sheep) were more extraverted than disbelievers (goats), with Eysenck (1967) and Thalbourne and Haraldsson (1980) reporting similar results. However, some other studies have shown no such association (Lester et al., 1987; Windholz and Diamant, 1974), which may be due to some of the issues highlighted below.

Unfortunately, some of the prior research in this area has been plagued by several methodological problems, including semantic ambiguity regarding the dimensions of paranormal belief, imprecise operational definitions that blur the constructs of belief and experience, and measurement inconsistencies of the constructs themselves. For example, Irwin (1993) points out that the numerous scales differ widely in their operational definitions of the construct and as such ‘paranormal belief’ has been stretched to include a host of unusual phenomena, e.g. belief in witches, UFOs, etc., which do not fall under the traditional definition of the term (French, 1992)<sup>1</sup>. The reasons for this include specific biases of the researchers, limitations of the measurements, or conceptual differences regarding the dimensionality of the construct (Rattet and Bursik, 2000).

With respect to the employed RPBS, a controversy exists (Lawrence, 1995) regarding the classification of traditional religious beliefs and superstition as

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<sup>1</sup> The traditional definition of the term ‘paranormal’ that French (1992) refers to only includes ESP and PK. ESP is defined as ‘paranormal cognition: the acquisition of information about an external event, object, or influence (mental or physical; past, present, or future) in some way other than through any of the known sensory channels’. This term subsumes telepathy (direct mind to mind contact), clairvoyance (acquisition of information relating to remote objects or events), and precognition (knowledge of future events other than by ordinary deduction). PK or psychokinesis is defined as ‘paranormal action; the influence of mind on a physical system that cannot be entirely accounted for by the mediation of any known physical energy’. PK is often subdivided into micro-PK, defined as ‘any psychokinetic effect that requires statistical analysis for its demonstration. Sometimes used to refer to PK that has as its target a quantum mechanical system’ and macro-PK, defined as ‘any psychokinetic effect that does not require statistical analysis for its demonstration; sometimes used to refer to PK that has as its target a system larger than quantum mechanical processes, including microorganisms, dice, as well as larger objects’.

paranormal, despite some strong empirical evidence (Thalbourne, 1997). However, many of the phenomena associated with traditional religion (in this case Christianity) such as miracles, resurrection, souls etc. also violate the basic limiting principles of science and therefore some authors suggested that they fit the stated definition of paranormality (e.g. Tobayck and Pirittila-Backman, 1992). Hence, it is clear that further research will be necessary to explore and verify the limited and mixed findings that have been produced so far.

## 1.2. RELIGIOUS BELIEFS AND PERSONALITY

Paradoxically, while the major religions proclaim brotherly love, history has shown that religion has often been used as a justification for violence and prejudices – e.g. the Spanish Inquisition (1478 – 1834) in Europe<sup>2</sup> (Eliade, 1990). This, amongst other reasons, has been a spur for researchers to shed light on the personality-religiosity relationship.

Initial attempts to measure religiosity were performed by calculating the frequency of church attendance and the belief in the existence of a transcendent reality<sup>3</sup>. This has slowly made way towards more sophisticated measurement methods and the use of personality theories to inform the research.

Early research with regard to personality and religiosity used Eysenck's three-dimensional model of personality, based on the underlying factors of Psychoticism, Extraversion and Neuroticism (PEN) (Eysenck and Eysenck, 1968, 1985). Eysenck and Eysenck (1968; 1985) confirmed that in a very

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<sup>2</sup> The Spanish Inquisition was used for both political and religious reasons. Spain is a nation-state that was born out of religious struggle between numerous different belief systems including Catholicism, Islam, Protestantism and Judaism. Following the Crusades and the Reconquest of Spain by the Christian Spaniards the leaders of Spain needed a way to unify the country into a strong nation. Ferdinand and Isabella chose Catholicism to unite Spain and in 1478 asked permission of the pope to begin the Spanish Inquisition to purify the people of Spain. They began by driving out Jews, Protestants and other non-believers.

<sup>3</sup> Transcendence is effectively the belief of having existence outside of the created, physical world.

limited way, different kinds of religiosity correspond to differences in personality traits, although some other studies failed to find any link between religious attitudes and personality (e.g. Chau, Johnson, Bowers, Darvill and Danko, 1990; D'Onofrio, Eaves, Murrelle, Maes and Spilka, 1995; Heaven, 1990; Robinson, 1990). However, in general a series of studies across cultures and denominations converged on the opinion that religious people tend to score lower on Psychoticism (Francis, 1992a, 1992b, 1993; Francis and Katz, 1992; Francis and Pearson, 1993; Lewis and Joseph, 1994; Lewis and Maltby, 1995, 1996; Maltby, 1999a, 1999b). As for the other two factors, different studies produced different results and these inconsistencies lead researchers to believe that these factors are unrelated to religiosity (Eysenck, 1998; Francis, 1992b).

Studies using the Five-Factor Model of personality produced a slightly different result. In many studies (Saroglou, 2002; Kosek, 1999, 2000; Taylor & McDonald, 1999), religiousness is positively related to Agreeableness and Conscientiousness, although these correlations are low (Saroglou, 2002) or sometimes even absent (Streyffeler & McNally, 1998; Saucier & Goldberg, 1998). This also confirms the hypothesis of the low correlation between Psychoticism and religion in the Three Factor Model. Although in most of the studies no significant relation between religion and other factors of the Five Factor Model (Saroglou, 2002) has been found, other studies suggest that religious people should be situated high on some of the other factors as well (Duriez, 2002; McCrae, 1999; Taylor & MacDonald, 1999). Religiosity was weakly correlated with Extraversion, and there was a small but significant effect size regarding Openness to Experience (Saroglou, 2002). Saroglou (2002) as well McCrae (1996; 1999) mentioned the complex but clear pattern of relation between religion and Openness to Experience. Participants who have high scores on Openness to Experience are associated with "open and mature religion" (Saroglou, 2002). Saroglou (2002) also mentioned the striking result that religious fundamentalists are associated with low Openness to Experience. This factor has to be examined in further research. However, one should take into consideration that most of the above-mentioned results have been found in studies in which researchers

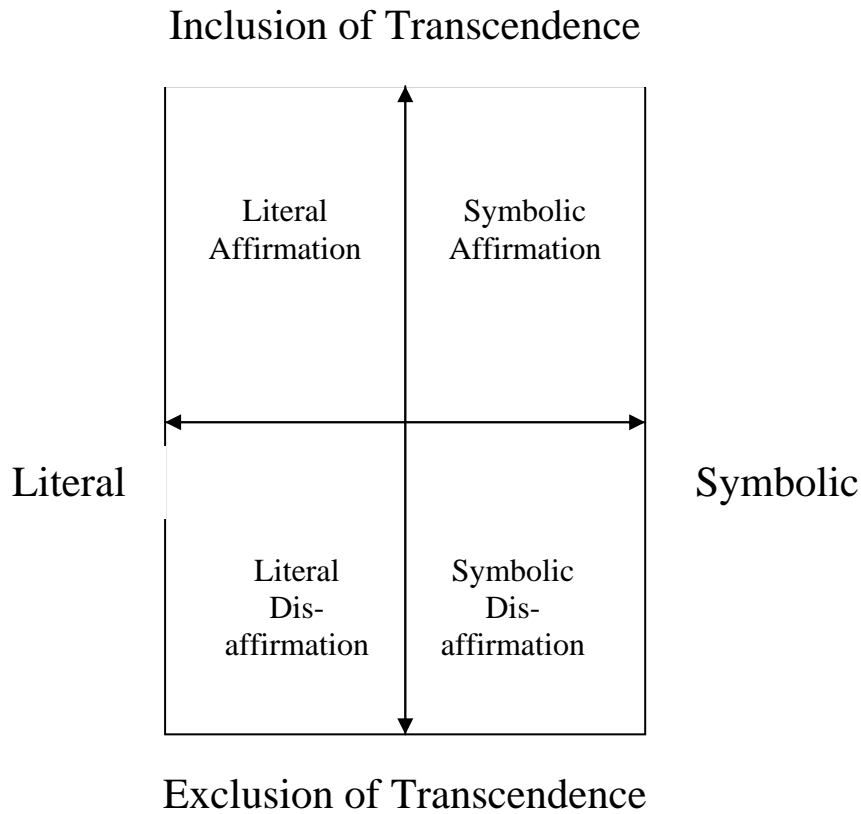
have been working with a uni-dimensional model. The innovative aspect of the Post-Critical Belief Scale is the proposed two-dimensional structure of religiosity. Although in line with previous research, where none of the five factors of personality correlate significantly with religiosity as it was measured by the Literal vs. Symbolic dimension, a significant correlation with Openness to Experience was found. This is in line with Duriez, Soenens, & Beyers (2003), McCrae (1996, 1999), McCrae, Zimmermann, Costa, & Bond, (1996), and Saroglou (2002) Duriez, Luyten, Snauwaert, Hutsebaut (2002), who expected Openness to Experience to be crucial in order to understand the relation between religiosity and personality.

In a similar approach to paranormal beliefs, Openness to Experience has been suggested as an important factor that might lead to a better understanding of religiosity (McCrae, 1999), as individuals high in this factor are thought to be characterised by a particularly permeable structure of consciousness. This has been supported by a study by Streyffeler and McNally (1998), who found liberal and fundamentalist Protestants to differ with respect to this factor, but not to any other factor of the FFM. This factor, given its definition, is hypothesised to be highly relevant for the way in which religious issues are interpreted and processed.

To this end, Wulff (1991, 1997) has recently constructed a comprehensive framework based on the theory of Paul Ricoeur to identify the various possible approaches to religion (Peeters, 2003a & 2003b, Ricoeur 1970 & 1990, Wallace, 1990). It attempts to arrange the approaches in two orthogonal bipolar dimensions. The vertical axis -Exclusion versus Inclusion of Transcendence- specifies whether or not objects of religious interest are granted participation in a transcendent reality, and as such this gives an indication whether or not an individual is religious/spiritual. The horizontal axis -the Literal versus Symbolic dimension- refers to the ways of interpreting religious expression, i.e. an individual can interpret things in a literal or symbolic way. Thus, this dimension can be seen as a form of cognitive comprehension in the way that religious material is processed. As a result four quadrants can be formulated (Figure 1), each representing a

differing approach to religion: Literal Affirmation, Literal Disaffirmation, Symbolic Affirmation (also called Reductive Interpretation) and finally Symbolic Disaffirmation (also called Restorative Interpretation).

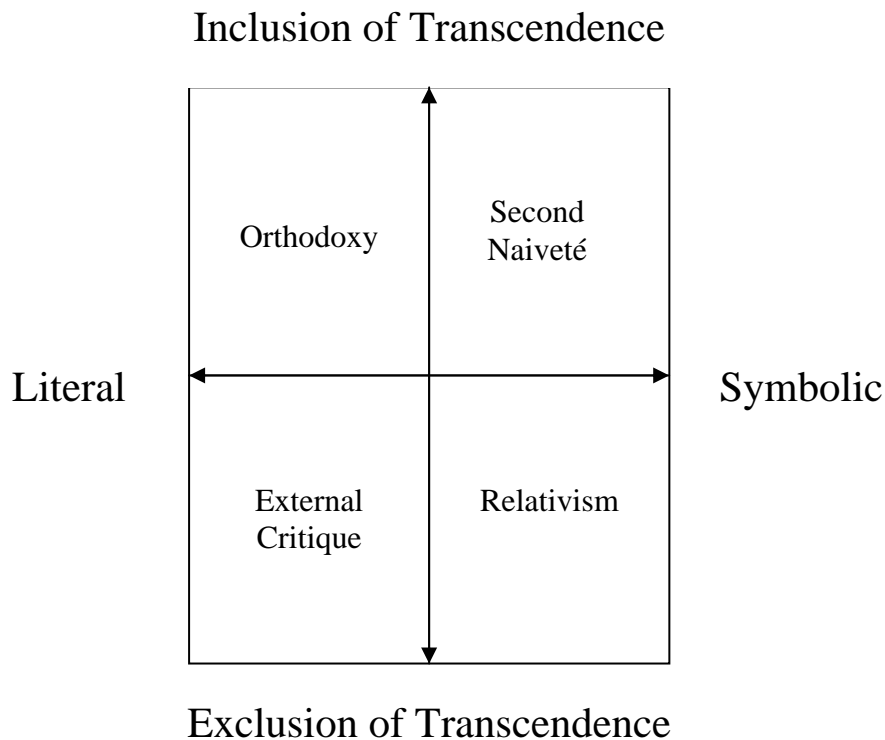
**Figure 1.** Wulff's two dimensional model of religiosity (1991, 1997)



Based on Wulff's theory, Hutsebaut and his colleagues (Desimpelaere, Sulas, Duriez and Hutsebaut, 1999; Duriez and Hutsebaut, 2000; Hutsebaut, 1996, 1996, & 2000) constructed the Post Critical Belief Scale (PCBS) as an operationalisation of his heuristic model. Here, the four approaches to Christian religiosity of Orthodoxy, External Critique, Relativism and Second Naiveté map onto the four quadrants of Wulff's model, respectively - Literal Affirmation, Literal Disaffirmation, Symbolic Affirmation and finally Symbolic Disaffirmation (Figure 2). Only recently however, thorough assessments have been performed with regard to the validity of the PCBS construct. Duriez, Fontaine and Hutsebaut (2000) reported that it provides accurate measures of Wulff's four approaches to religion and that the two components can be interpreted in terms of the dimensions Exclusion

versus Inclusion of Transcendence and Literal versus Symbolic (Fontaine, Duriez, Luyten and Hutsebaut, 2003).

**Figure 2.** Hutsebaut's Model of religiosity (1991, 1999)



An important point of attention with regard to the previous studies (and results) in this area, such as those reported by Saroglou (2002) and by Peeters (2003a), is that prior to this new model, researchers were working with a uni-dimensional model of religion. The introduction of the innovative two-dimensional model should allow a further discrimination of the complex relationships between personality factors and religiosity-profiles (Peeters, 2003a). For example, nevertheless previous studies reported little or no significant correlations between Openness to Experience and religiosity, the PCBS, as measured by the Literal versus Symbolic dimension did report significant correlations corresponding with previous theories stating that the factor ought to be crucial in understanding the relation between personality and religiosity-profiles (Peeters, 2003a, Duriez, Soenens and Beyers, 2003; McCrae, 1996, 1999; Verhoeven and Hutsebaut,



1995, McCrae, Zimmerman, Costa and Bond, 1996; Saroglou, 2002; Duriez, Luyten, Snauwaert and Hutsebaut, 2002).

### 1.3. PARANORMAL AND RELIGIOUS BELIEFS

With respect to contemporary personality and development research, it is assumed that personality traits are not merely descriptions of static and enduring inter-individual differences. Rather, they should be considered dynamic, organisational constructs, influencing how people organize their behaviour, process information and adapt to the social environment (Buss, 1989; Caspi, 1998; McCrae & Costa, 1997; Roberts, Caspi and Moffitt, 2001). With this mind it seems reasonable to presume that there may be some underlying connection between religious beliefs and belief in paranormal phenomena – cf. the terms sheep and goat, used to denominate paranormal believers and non-believers, respectively, as introduced by Schmeidler (1945), who took them from a religious connotation in the Bible (Matthew, 25: 31-33). The potential relationship between paranormal and religious beliefs has yet to be explored in any great detail and this lack of research has provided the impetus for this study. The aim of this study is to investigate a potential correlation between paranormal beliefs (measured by the RPBS) and religious beliefs (measured by the PCBS) or vice versa, and also -if any- the personality factors that will predict or correlate with these beliefs. This study will also represent the first use of the PCBS for measuring religiosity in the UK.

Past research has shown the following correlations between paranormal and religious beliefs: firstly, Tobayck and Milford (1983) found traditional religious belief to correlate positively with belief in witchcraft and precognition, but negatively with belief in spiritualism and non-significantly with belief in psi, superstition, and extraordinary life forms. Clarke (1991) found slightly different results with religiosity correlating positively with belief in psychic healing and negatively with UFO belief. Finally, Hillstrom and Strachan (2000) reported negative correlations between religiosity and

beliefs in telepathy, precognition, PK, psychic healing, UFOs, reincarnation, and communication with the spirits. As indicated earlier, the mixed results are largely due to the different measurements of paranormal belief used. Moreover, the measurement of religiosity was performed either by a simple measure of attendance or via the Traditional Religious Beliefs subscale on the RPBS.

With respect to religious beliefs and personality factors, past research indicates that religiosity is associated with low Psychoticism (Agreeableness and Conscientiousness in the FFM), as shown in the meta-analysis by Saroglou (2002), who also reported that extraversion was weakly correlated. Using the PCBS as the instrument of measurement, significant correlations between Openness to Experience and religiosity (as measured by the literal vs. symbolic dimension) have been found (Duriez, Soenens and Beyers, 2003) in accordance with previous theories stating that the factor ought to be crucial in understanding the relation between personality and religiosity (McCrae, 1996, 1999; McCrae, Zimmerman, Costa and Bond, 1996; Saroglou, 2002; Duriez, Luyten, Snauwaert and Hutsebaut, 2002, Peeters, 2003a).

The personality correlates most associated with paranormal beliefs have been Extraversion, which was associated with higher belief scores (Thalbourne, 1981; Thalbourne, 1980; Eysenck, 1967) and Neuroticism (Thalbourne, Dunbar and Delin, 1995). The specifically linked subscales were: psi belief, witchcraft, spiritualism, precognition and traditional religious beliefs. Gender differences have also been reported with women tending to score higher than men on global paranormal belief (Clarke, 1991; Rice, 2003; Tobayck and Milford, 1983) but men having stronger beliefs in the existence of UFO's and extraterrestrials (Clarke, 1991; Rice, 2003).

Thus, this study seeks to confirm literature findings and to extend the boundaries of previous work by investigating any relationship between paranormal beliefs and religious beliefs. In light of the aims of the study

and the previous research that has been detailed, the following hypotheses will be tested:

### **Hypothesis 1**

- There will be some relationship between paranormal beliefs and religious beliefs.

### **Hypothesis 2**

- Women will show greater global paranormal belief than men.

### **Hypothesis 3**

- The personality factors expected to correlate with paranormal belief are Neuroticism and Extraversion.

### **Hypothesis 4**

- The personality factors expected to correlate with religiosity are Agreeableness and Conscientiousness (Psychoticism in the three factor model).

## **2. METHOD**

### **2.1. DESIGN**

The study was a repeated measurements design, which used the questionnaire survey method. The independent variable was the participant's beliefs (paranormal or religious) while the dependent variable was the participant's scores on the scales of paranormal beliefs, religious beliefs and personality factors.

## 2.2. PARTICIPANTS

An opportunity sample of 69 participants was selected and completed the questionnaire, the majority of which were undergraduate psychology students from Manchester Metropolitan University. Participants ranged in age from 18 to 56 years ( $M = 27.83$ ,  $S. D. = 10.88$ ). The ratio of males to females was 31:69 (or 20 males to 45 females). Participants who had three or more missing values on either the paranormal belief scale (RPBS), the religiosity beliefs scale (PCBS) or the personality scales were excluded from further analyses. In total, four of the participants questionnaire results had to be removed leaving  $N = 65$ .

## 2.3 MATERIALS

The constructs of paranormal belief, religious belief and personality were assessed by the following procedures:

### 2.3.1 PARANORMAL BELIEF SCALE

The revised Paranormal Belief Scale (RPBS) by Tobayck (1988, 1991) is a 26 item self-report scale, which measures the following seven forms of paranormal beliefs: traditional religious belief, psi belief, witchcraft, superstition, spiritualism, extraordinary life forms and precognition. Responses to each item are scored on a seven-point Likert scale with a higher rating indicating stronger endorsement. Tobayck and Milford (1983) reported satisfactory reliability and validity using the original form of the PBS. The test-retest-reliability for the subscales was improved in the revision, but the internal consistency of the revised PBS was not reported (Tobayck, 1991). See Appendix 1 for the complete set of questions

### 2.3.2 RELIGIOUS BELIEF SCALE

The Post-Critical Belief scale<sup>4</sup> (PCBS) was used to measure the religiosity of participants (Duriez et al., 2000). The scale consists of 33 items, providing measurements of Orthodoxy (e.g. ‘Only a priest can give an answer to important religious questions’), External Critique (e.g. ‘In the end, faith is nothing more than a safety net for human fears’), Relativism (e.g. ‘Secular and religious conceptions of the world give valuable answers to important questions about life’) and Second Naiveté (e.g. ‘The Bible holds a deeper truth which can only be revealed by personal reflection’). Fontaine et al. (2003) have found that this scale also provides measurements of the basic religiosity dimensions that Wulff (1991, 1997) identified. Hence, in this way the effects of being religious or not (Exclusion vs. Inclusion of Transcendence) can be separated from the way in which religious contents are processed (either in a literal or symbolic manner). The items were scored on a seven point Likert scale. Also, the validity of the PCBS construct has been tested. Duriez, Fontaine and Hutsebaut (2000) stated that it provides accurate measurements of Wulff’s four approaches to religion. Finally, a high score on Exclusion vs. Inclusion of Transcendence indicates a tendency to include transcendence. A high score on Literal vs. Symbolic indicates a tendency to deal with religion in a symbolic way.

### **2.3.3 PERSONALITY SCALE**

A 50 question version of the NEO-PI-R, based upon the Five Factor Model (FFM), was used in this study and this instrument is backed by a considerable amount of literature (for a review see Costa and McCrae, 1992) showing good evidence for validity and reliability. The questionnaire statements are marked on a seven point scale, again with higher scores indicating stronger endorsement. The five scales that are measured include

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<sup>4</sup> The PCBS was originally administered in Dutch but has since been translated into English. The translation was done according to the guidelines of the International Test Commission (Hambleton, 1994), using the back-translation procedure (Brislin, 1980). Differences between the back-translated and the original version were minimal. A committee of bilingual research assistants decided on the final English version (Van de Vijver and Lueng, 1997).

Neuroticism, Extroversion, Openness to experience, Agreeableness and Conscientiousness with 10 questions used for each factor.

## 2.4 PROCEDURE

The questionnaire, which included the three scales measuring paranormal belief, religious belief and personality factors, was distributed to participants using the opportunity method. Participants were informed that their answers would remain anonymous and they could choose not to complete it if they wished. This was stated verbally and in writing.

## 2.5 ETHICS

Because of the involvement of human participants in the research process, the ethical principles for conducting research, as stated by the BPS (1992), were closely followed. It was made clear to all of the participants, both verbally and in writing that participation was entirely voluntary and that they were free to withdraw consent for their completed questionnaire at any time, and for whatever reason.

# 3. RESULTS

## 3.1 INTERNAL CONSISTENCIES

Table 1 shows the internal consistencies (as rated by Cronbach's Alpha) for all the scales used in the study. These statistics show that all the scales are performing adequately among the sample used. The one notable exception was the Extraordinary Life Forms scale, which had an initial coefficient of .48 before one item was removed (question number 20: 'There is life on other planets') resulting in an Alpha of Cronbach of .71. The only other

Cronbach Alpha below .70 was Relativism on the PCBS but the score of .69 was only just below and considered acceptable, particularly as the maximum coefficient that could have been obtained, was .71 if one item was removed (question number 28: ‘Secular and religious conceptions of the world give valuable answers to important questions about life’). These results provide further confirmatory evidence regarding the internal consistency and validity of the Big Five personality inventory (for a review of literature see Costa and McRae, 1992) and the PBS-R (Tobayck and Milford, 1983; Tobayck, 1988) and also for the PCBS, which has only been used before in Belgium (Duriez et al., 2000; Duriez, Fontaine and Hutsebaut, 2000; Fontaine et al., 2003).

**Table 1.** Cronbach Alpha coefficients for all the scales used.

<b>Scale</b>	<b>Cronbach’s Alpha</b>
<b>Revised Paranormal Belief Scale (PBS-R)</b>	
• Global	.91
• Traditional Religious Beliefs	.87
• Psi	.72
• Witchcraft	.87
• Superstition	.85
• Spiritualism	.79
• Extraordinary Life Forms	.71*
• Precognition	.83
<b>Post- Critical Belief Scale (PCBS)</b>	
• Global	.77
• Orthodoxy	.82
• External Critique	.87
• Relativism	.69
• Second Naiveté	.73
<b>Big Five Personality Factors</b>	
• Neuroticism	.88
• Extraversion	.85
• Openness to Experience	.82
• Agreeableness	.78
• Conscientiousness	.84

\*The original Cronbach Alpha score for this was .48 before one item (Q20) was removed.

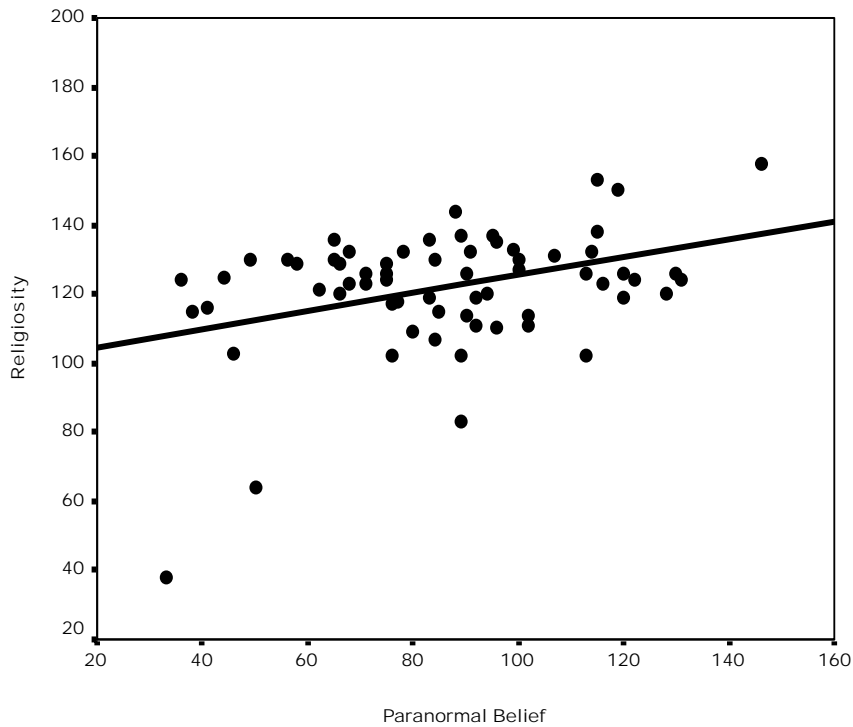
### 3.2 RELIGIOSITY AND PARANORMAL BELIEFS

A simple regression was used to determine whether religious belief was predicted by paranormal belief. A significant relationship was revealed. Simple regression, using the enter method, was performed revealing a significant relationship between the two constructs ( $F_{1, 63} = 10.30, p > 0.05$ ). The adjusted R square = 0.127.

The scatterplot of the relationship between paranormal belief and religiosity suggested a linear relationship between the two variables. It is possible to predict a person's religiosity from their paranormal beliefs. The equation is  $Y' = 99.28 + 0.26X$ , where X is an individual's paranormal belief score and Y' is the best prediction of their religiosity score.

**Figure 3.** Graph showing the relationship between (global) religious belief scores and (global) paranormal belief scores





Multiple regression, using the enter method<sup>5</sup>, was performed to find out which one -if any- of the paranormal subscales predicts religiosity. No significant model emerged for the predictor variables ( $F 7, 57 = 1.79, p > 0.05$ ). The adjusted R square = 0.079. Significant variables are shown below:

<b>Predictor Variable:</b>	<b>Beta</b>	<b>P</b>
Precognition	0.471	$p = 0.030$

(Traditional Religious Belief, Psi, Witchcraft, Superstition, Spiritualism and Extraordinary Life Forms were not found to significantly predict religiosity).

Another multiple regression analysis was performed, again using the enter method, this time to find out which one -if any- of the religiosity subscales predicts belief in the paranormal. No significant model emerged for the

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<sup>5</sup> Note: although the sample size is smaller than is sometimes considered adequate for multiple regression, the sample size is in advance of the minimum number outlined by Bruce, Kemp and Snelgar (2003) of five times as many participants as predictor variable: the observed ratio is an acceptable 11 to 1.

predictor variables ( $F 4, 60 = 5.327, p > 0.05$ ). The adjusted R square = 0.213. Significant variables are shown below:

<b>Predictor Variable:</b>	<b>Beta</b>	<b>P</b>
Orthodoxy	0.273	$p = 0.028$
Second Naiveté	0.330	$p = 0.024$

(External Critique and Relativism were not found to significantly predict religiosity).

### 3.3 PARANORMAL BELIEFS AND PERSONALITY FACTORS

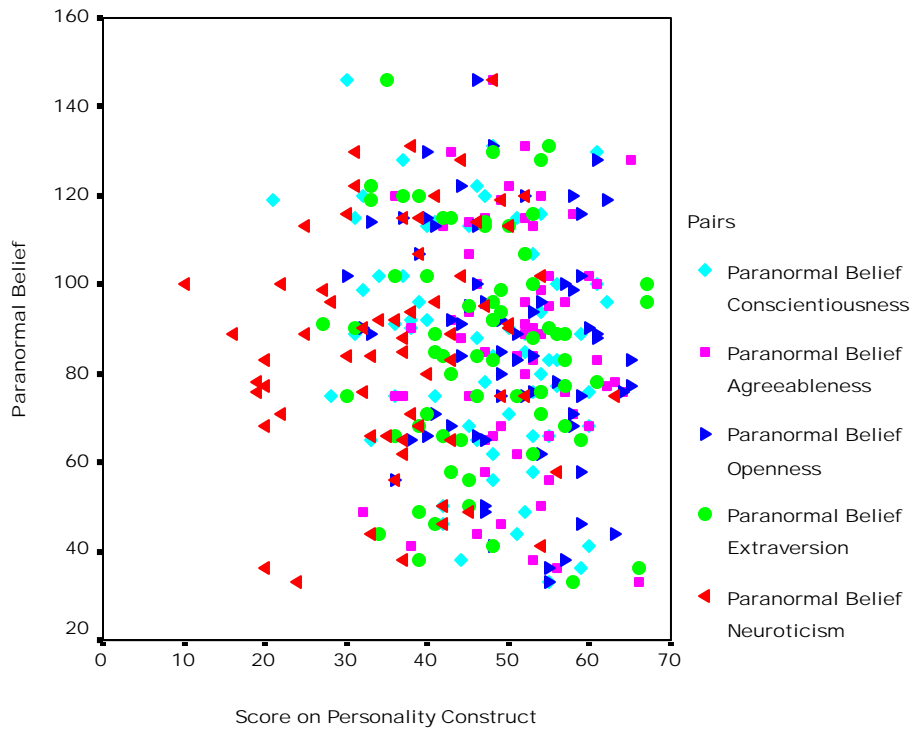
Using the enter method, no significant model emerged for the predictor variables ( $F 5, 59 = 1.75, p > 0.05$ ). The Adjusted R square = 0.056. Significant variables are shown below:

<b>Predictor Variable:</b>	<b>Beta</b>	<b>P</b>
Conscientiousness	-0.331	$p = 0.018$

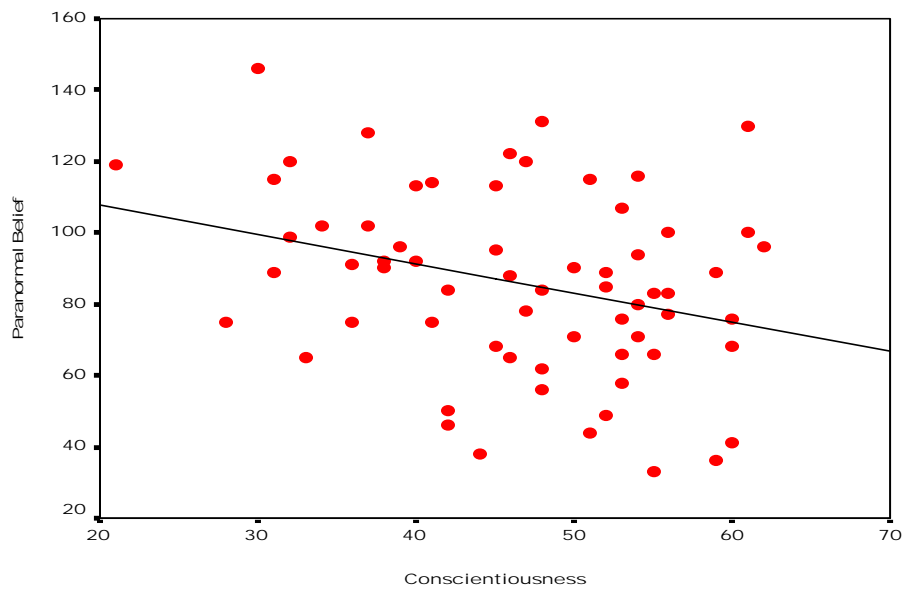
(Neuroticism, Extraversion, Openness and Agreeableness were not found to significantly predict paranormal belief).

That Conscientiousness was found to be the only significant predictor of paranormal beliefs, which was in contrast to previous research revealing a connection between Extraversion and higher belief scores (Thalbourne, 1981; Thalbourne, 1980; Eysenck, 1967) as well as Neuroticism (Thalbourne, Dunbar and Delin, 1995).

**Figure 4.** Chart showing the relationship between (global) paranormal beliefs scores and personality factors



**Figure 5.** Graph showing the relationship between (global) paranormal belief scores and the personality factor Conscientiousness



### 3.4 PARANORMAL BELIEFS AND GENDER

A series of independent t-tests were used to determine whether gender differences were present on the paranormal belief scale. Comparisons were conducted on the overall paranormal belief scale total and each of the seven subscales (Traditional Religious Beliefs, Psi, Witchcraft, Superstition, Spiritualism, Extraordinary Life Forms and Precognition).

**Table 2.** Gender scores (mean and standard deviation) for global paranormal belief and the seven subscales

Paranormal measure	Gender		Overall
	Male (n=20)	Female (n=45)	
Global Paranormal Belief	85.25 (30.30)	86.27 (23.78)	85.95 (25.72)
Traditional Religious Beliefs	14.40 (7.71)	16.49 (6.33)	15.85 (6.79)
Psi	14.45 (6.20)	14.49 (4.65)	14.48 (5.13)
Witchcraft	12.55 (7.13)	14.22 (6.29)	13.71 (6.55)
Superstition	6.60 (5.43)	6.93 (3.91)	6.83 (4.33)
Spiritualism	13.80 (6.65)	13.84 (5.69)	13.83 (5.95)
Extraordinary Life Forms	5.30 (2.89)	4.53 (2.53)	4.77 (2.64)
Precognition	13.10 (6.09)	12.73 (5.34)	12.85 (5.54)

Standard deviation scores are given in brackets

No gender differences were found between males and females on measures of paranormal belief:

Paranormal Belief (Global),  $t(63) = -0.146, p > 0.05$ ; Traditional Religious Beliefs,  $t(63) = -1.147, p > 0.05$ ; Psi,  $t(63) = -0.028, p > 0.05$ ; Witchcraft,  $t(63) = -0.949, p > 0.05$ ; Superstition,  $t(63) = -0.284, p > 0.05$ ; Spiritualism,  $t(63) = -0.028, p > 0.05$ ; Extraordinary Life Forms,  $t(63) = 1.080, p > 0.05$  and Precognition,  $t(63) = 0.245, p > 0.05$ .

Similar to the above, the obtained results, indicating no significant differences between male and female paranormal belief scores, was in contrast to previous research, reporting a higher score on global paranormal belief by women (Clarke, 1991; Rice, 2003; Tobayck and Milford, 1983), while men were shown to express stronger beliefs in the existence of UFO's and extraterrestrials (Clarke, 1991; Rice, 2003).

### 3.5 RELIOSITY AND PERSONALITY FACTORS

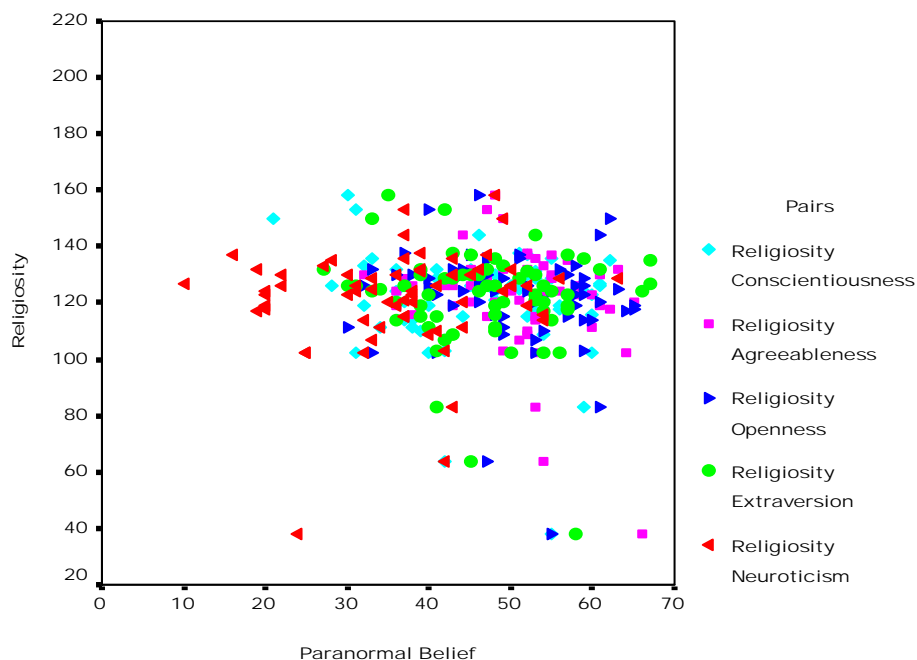
Using the enter method, no significant model emerged for the predictor variables ( $F(5, 59) = 1.503, p > 0.05$ ). The Adjusted R square = 0.038. Significance variables are shown below:

Predictor Variable:	Beta	P
Agreeableness	-0.32	$p = 0.38$

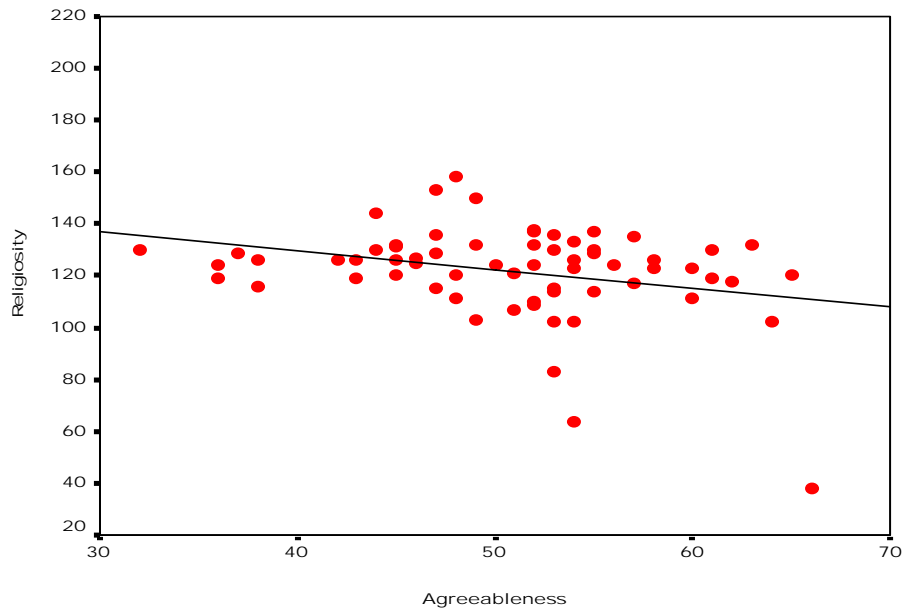
(Neuroticism, Extraversion, Openness and Conscientiousness were not found to significantly predict religious belief).

The significant correlation between the personality factor Agreeableness and religiosity provides partial support for previous studies that stated low Psychoticism (Agreeableness and Conscientiousness in the FFM) to be associated with religiosity (see the meta-analysis by Saroglou, 2002). This result suggests that the Agreeableness factor may be the most important factor in predicting religiosity.

**Figure 6.** Chart showing the relationship between (global) religiosity scores and personality factors



**Figure 7.** Graph showing relationship between (global) religiosity scores and the personality factor Agreeableness.



### 3.6 OPENNESS TO EXPERIENCE AND THE RELIGIOSITY SUBSCALES

Using the enter method, no significant model emerged for the predictor variables ( $F(4, 60) = 2.810, p > 0.05$ ). The Adjusted R square = 0.102. Significance variables are shown below:

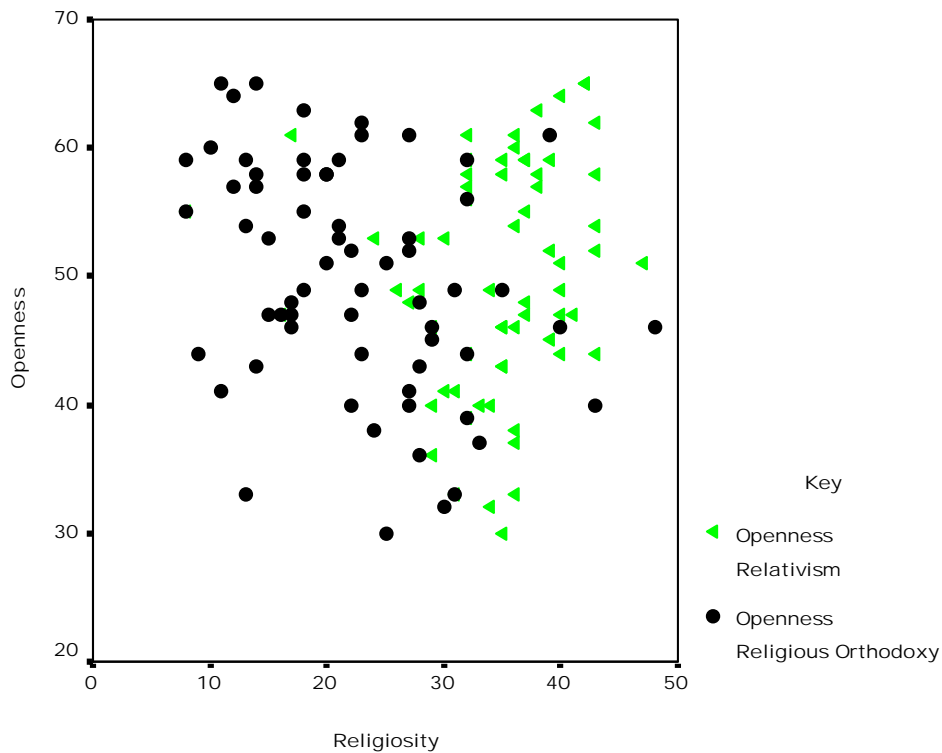
Predictor Variable:	Beta	P
Orthodoxy	-2.55	$p = 0.05$
Relativism	1.58	$p = 0.05$

(Second Naiveté and External Critique were not found to significantly predict Openness to Experience).

That Openness to Experience is significantly related to both Orthodoxy and Relativism provides further supporting evidence for theories stating that it ought to be crucial in understanding the relation between personality and religiosity (McCrae, 1996, 1999; McCrae, Zimmerman, Costa and Bond, 1996; Saroglou, 2002; Duriez, Luyten, Snauwaert and Hutsebaut, 2002). However, this result does not support previous findings by Duriez, Soenens

and Beyers (2003) that Openness to Experience is significantly related to the Literal vs. Symbolic dimension.

**Figure 8.** Chart showing relationship between the scores of the religiosity subscales Orthodoxy and Relativism against scores of the personality factor Openness to Experience.



### 3.7 SUMMARY

In summary then, this study showed that religious beliefs and paranormal beliefs are indeed associated, confirming initial exploratory studies that suggested some kind of relationship between the two (Goode, 2000; Haraldsson, 1981). The results here did not confirm the hypothesis based on previous studies, stating that Neuroticism (Thalbourne, Dunbar and Delin, 1995) or Extraversion (Thalbourne, 1981; Eysenck 1967; Thalbourne and Haraldsson, 1980) are correlated with paranormal beliefs. Instead, Conscientiousness was found to be the only personality factor that significantly predicted paranormal beliefs and it was negatively correlated to

these beliefs. No significant gender differences were found on either global paranormal belief or on any of the seven subscales, in contrast to previous studies (Clarke, 1991; Rice, 2003; Tobayck and Milford, 1983; Wolfradt, 1997). With regard to religiosity, the personality factor Agreeableness was significantly correlated with religiosity, providing partial support for previous studies indicating low Psychoticism (Agreeableness and Conscientiousness in the FFM) to be associated with religiosity (Francis, 1992a, 1992b, 1993; Francis and Katz, 1992; Francis and Pearson, 1993; Lewis and Joseph, 1994; Lewis and Maltby, 1995, 1996; Maltby, 1999a, 1999b; Saroglou, 2002).



## 4. DISCUSSION

### 4.1 PARANORMAL BELIEFS AND RELIGIOSITY

The main aim of this study was to determine the potential relationship between paranormal and religious beliefs. A significantly positive correlation was revealed and a simple model emerged<sup>6</sup>. This result provides supporting evidence for a relationship between the two constructs that was initially suggested in Goode's (2000) exploratory study and Haraldsson's (1981) Icelandic samples of belief in psychic phenomena and self-reported religiosity (consisting of items related to praying and the reading of religious material). The findings in this study are in contrast to those by Hillstrom and Strachan (2000), who reported negative correlations between religiosity and beliefs in telepathy, precognition, PK, psychic healing, UFOs, reincarnation, and communication with spirits. The results are also opposed to the view expressed by Sparks (2001), stating that there are sound conceptual reasons, by which the non-close relationship between these two domains of belief can be explained. The reasons he suggested were the lack of treating or endorsing most paranormal phenomena in any detail in any of the religious traditions -therefore religious believers may reject the possible occurrence of this kind of phenomena - secondly, the explicit teachings of many religions, which rely on its followers to demonstrate faiths that are untestable using the scientific method (for example, the central belief of Christians that Jesus Christ dies for people's sins). This is different to paranormal phenomena that have been test in laboratory conditions (e.g. Zener card tests for ESP). This view may be somewhat simplistic though, as even the most deeply religious of people would be exposed to other environmental and social influences that could affect their interpretation of events in the world without unduly impinging upon their religious activity and beliefs.

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<sup>6</sup> The equation for this simple model is  $Y' = 99.28 + 0.26X$  where X is an individual's paranormal belief score and Y' is the best prediction of their religiosity score

Precognition was found to be the best (and most significant) predictor of religious beliefs. The other paranormal subscales were not able to significantly predict religiosity. This is an interesting result and one that has been seen before, such as in Tobayck and Milford's (1983) study, which showed that items pertaining to Traditional Religious Belief (belief in survival, devil, God, heaven and hell) constituted a factor supposedly independent of the other belief dimensions on the RPBS and that they correlated positively with belief in precognition ( $r = 0.23$ ). The fact that precognition is significantly related to religiosity might be considered 'common sense' when considering the number of examples involving prophetic visions and dreams that are recorded in the Bible (Sparks, 2001).

Of similar interest was the finding of the Orthodoxy and Second Naiveté religious subscales as the most significant predictors of paranormal belief. The common factor between these two subscales is the Inclusion of Transcendence aspect in respect to Wulff's (1991, 1997) two-dimensional model of religiosity. This relates to the belief in an afterlife, spiritual or some other form of existence beyond the physical realm. Past research indicates that, with the exception of a few countries such as the former East Germany and Slovenia, the majority of the population believes in a life after death and that the amount of people expressing this belief is actually increasing (Greeley, 1995). The common thread that might link paranormal and religious beliefs is the explanation of the belief in transcendence as some kind of anxiety-reduction process regarding the anxiety about death, since Osarchuk and Tatz (1973, p. 256) had concluded that one function of belief in an afterlife 'might be to help the individual to deal with anxiety over death'. Perhaps most pertinent of all is a study by Thalbourne (1989), which collated evidence showing that those who believe in an afterlife also tend to believe in, and report the experience of, paranormal phenomena such as ESP and psychokinesis. Siegel (1980, p. 917) has gone so far as to remark that 'our belief in survival after death is probably related to some deep biological craving of the organism'. This anxiety regarding death may reflect a more general disposition towards anxiety that is found in paranormal believers in the previous studies (Okebukola, 1986; Wagner and

Ratzeburg, 1987). Anxiety ratings or scores for religious believers have not received much interest, so whether this is an important contributing factor towards these two beliefs remains to be examined by future research in this area.

## 4.2 PARANORMAL BELIEFS AND PERSONALITY

Conscientiousness was found to be the only personality factor significantly predicting paranormal beliefs and it was negatively correlated to it. This finding was in contrast with previous research, which revealed mixed results regarding personality correlates of paranormal belief. Some studies suggested that neuroticism was significantly related (Thalbourne, Dunbar and Delin, 1995), while others did not (Lester and Monaghan, 1995; Willging and Lester, 1997). Similarly Extraversion was found to be a significant correlate of paranormal belief in some studies (Thalbourne, 1981; Eysenck 1967; Thalbourne and Haraldsson, 1980), while not in others (Lester et al., 1987; Windholz and Diamant, 1974).

The influence of the Conscientiousness factor upon paranormal belief may be a reflection of the relatively small sample in the study and the use of the RPBS, which has only been used in a handful of previous studies. So it may in turn reflect the differing operational definitions of paranormality as a construct (Irwin, 1993). As can be seen, no clear consistent picture is emerging regarding personality correlates of global paranormal belief. Further research is necessary and perhaps an approach investigating those subscales that share similar attributes is required, e.g. superstition and spiritualism have been shown to correlate positively with external locus of control, and psi belief has correlated negatively (Wolfradt, 1997), so perhaps a more consistent picture with regards to personality factors may emerge taking this route.

#### 4.3 PARANORMAL BELIEFS AND GENDER

No significant gender differences were found on either global paranormal belief or on any of the seven subscales. This result was different from previous findings, suggesting that women score higher on global paranormal belief (Clarke, 1991; Rice, 2003; Tobayck and Milford, 1983; Wolfradt, 1997), while men have stronger beliefs in the existence of UFO's and extraterrestrials (Clarke, 1991; Dag, 1997; Rice, 2003). However, Dag (1997) also found no significant gender differences, except for Superstition scores among females and Extraordinary Life Forms scores among males, which were significantly higher. However, his study was based upon a Turkish sample, so maybe cultural differences might be at work here as it might also be in this study. The university education of the participants might also have been a confounding factor with regard to this previously fairly robust finding – the other surveys may reflect the gender differences in a more representative sample of the general population. Also as an aside, it has been found, via 'top-down purification', that the RPBS can yield systematically biased results with respect to gender differences in paranormal belief.

#### 4.4. RELIGIOSITY AND PERSONALITY FACTORS

The fact that the personality factor Agreeableness was significantly correlated with religiosity, provides partial support for previous studies reporting low Psychoticism (Agreeableness and Conscientiousness in the FFM) to be associated with religiosity (Francis, 1992a, 1992b, 1993; Francis and Katz, 1992; Francis and Pearson, 1993; Lewis and Joseph, 1994; Lewis and Maltby, 1995, 1996; Maltby, 1999a, 1999b; Saroglou, 2002). With regard to the FFM, many studies have shown that religiosity is positively related to Agreeableness and Conscientiousness (Saroglou, 2002; Kosek, 1999, 2000; Taylor and McDonald, 1999), although these correlations are typically low, as highlighted by Saroglou (2002) in his meta-analysis of previous studies. No significant correlations were found between

Conscientiousness (or any of the other factors) and religiosity. Thus, this result largely confirms previous findings regarding religiosity and personality.

With respect to the religiosity subscales, Openness to Experience was significantly negatively correlated with Orthodoxy and significantly positively correlated with Relativism. This adds weight to the theories that state Openness to Experience ought to be crucial in understanding the relation between personality and religiosity (McCrae, 1996, 1999; McCrae, Zimmerman, Costa and Bond, 1996; Saroglou, 2002; Duriez, Luyten, Snauwaert and Hutsebaut, 2002). However, this result does not support previous findings by Duriez, Soenens and Beyers (2003) that Openness to Experience is significantly related to the Literal vs. Symbolic dimension.

#### 4.5. POST-CRITICAL BELIEF SCALE (PCBS) AND REVISED PARANORMAL BELIEF SCALE (RPBS)

The first use of the PCBS with a UK sample went without a glitch. The internal consistency of the scale, as measured by Cronbach's Alpha, was global religious belief .77, Orthodoxy .82, External Critique .87, Relativism .69 and Second Naiveté .73, respectively. This indicated that the scale (and subscales) performed adequately for the sample used. The only Cronbach Alpha below .70 was Relativism but the score of .69 was only just below and considered acceptable, particularly as the maximum coefficient to be obtained was .71 if one item was removed (question number 28: 'Secular and religious conceptions of the world give valuable answers to important questions about life'). This provides further confirmatory evidence for the usefulness of the scale, for previous research that has shown validity of the scale construct, implying that its four subscales provide accurate measures of Wulff's four approaches to religiosity (Duriez, Fontaine and Hutsebaut, 2000) and that these can be interpreted in terms of the dimensions Exclusion vs. Inclusion of Transcendence and Literal vs. Symbolic (Fontaine, Duriz, Luyten and Hutsebaut, 2003).

The only drawback found when using the PCBS was that 4 out of the original 69 (6 percent) questionnaires completed had a host of missing responses to given statements, presumably due to the sometimes complex language (e.g. 'immutable') or statements (e.g. 'Secular and religious conceptions of the world give valuable answers to important questions about life') as noted previously by Duriez, Soenens and Hutsebaut, 2004. This incomplete percentage may be higher when a random sample is conducted rather than the sample used here, which consisted mainly of university students.

The internal consistencies of the RPBS were also more than adequate with Cronbach's Alpha's of .91, .87, .72, .87, .85, .79, .79, .71 and .83 for global paranormal belief, Traditional Religious Belief, Psi, Witchcraft, Superstition, Spiritualism, Extraordinary Life Forms and Precognition respectively. The one notable exception was the Extraordinary Life Forms scale which had an initial coefficient of .48 before one item was removed (question number 20: 'There is life on other planets'). This item doesn't fit in well with the other items ('The abominable snowman of Tibet exists' and 'The Loch Ness monster of Scotland exists') on a semantic basis, as the latter two could be regarded as 'mythological' artefacts, whereas the former is open to interpretation, i.e. there is either *intelligent* life on other planets or some other form of non-intelligent life such as bacteria. Again, this relates to the semantic ambiguity and the imprecise operational definitions of what constitutes paranormal phenomena (Irwin, 1993).

#### 4.6. PROBLEMS WITH THE STUDY

The most obvious shortcoming of this study was the relatively small sample used (n = 65), which consisted mainly of university students. Hence, the question of generalisability could be raised, since this sample did not truly represent a random cross-section of society. For example, previous research indicates that university students are less likely to hold religious beliefs than

those who have not attended university (Ford, 1960; Feldman, 1969), although a recent study by Jorm and Christensen (2004) reported that both the most and least religious groups tended to have a higher level of education. It should also be pointed out that religiosity and paranormal beliefs show some differences in content (e.g. religious attendance) between the investigated cultures and nationalities (e.g. UK, USA, Iceland, Belgium etc.), which may account for some of the variability in results found in the different studies.

With respect to RPBS, Lange, Irwin and Houran (2000) recommend the removal of differential item functioning (DIF) by ‘top-down purification’, which left them with two correlated clusters of items dubbed ‘New Age Philosophy’ and ‘Traditional Paranormal Beliefs’, as resulting from a study conducted on an Australian sample. They noted that cultural DIF might profitably be investigated.

Another issue that could be adapted in this study was the use of the 50 item version of the NEO-PI-R lifted from the International Personality Item Pool (IPIP) when the use of the NEO-FFI may have been more appropriate, as it was the scale used in studies of the PCBS. The use of the NEO-FFI would have maintained more consistency between the studies.

In more general terms, a methodological concern has been brought to the attention in the social-personality literature regarding the use of paper and pencil questionnaire based studies. Tentative evidence suggests that a ‘context effect’ may occur when participants, who complete two or more questionnaires during the same session (as in our research), adjust their responses to items in all instruments, based on a perceived relationship between the constructs measured by those instruments (Council, 1993; Council, Kirsch, Waters and Grant, 1995; Council, Grant, Smith, Solberg, Mertz, Knudson, Titus, Long, and Kramer, 1996). For example, when examining the relationship between paranormal belief and psychopathology, Council et al. (1995) found -as predicted by their hypothesis- no significant correlations when the questionnaires (the RPBS and the Symptom

Checklist-90-Revised - SCL-90-R; Derogatis, 1983) were administered together. But when the context was controlled (i.e. the questionnaires were presented as independent projects by different investigators 2 weeks apart), significant correlations emerged between the various subscales of psychopathology and paranormal belief (mean  $r = 0.26$ ,  $N = 92$ ).

#### 4.7 SUGGESTIONS FOR FUTURE RESEARCH

There is plenty of scope for future research in the areas covered in this study, particularly the relationship between the two constructs of paranormal belief and religion, as this represents a first substantial exploratory investigation. Thus, confirmation of this study will be necessary to corroborate the results found here. The relationship between these beliefs and other religious beliefs such as Buddhism, Hinduism, Spirituality etc. could be investigated.

In terms of personality factors, more research is needed in general and in particular of those factors involving the FFM. Also, Saroglou (2002) has previously noted that (in reference to religious beliefs and personality factors, but this can also be applied to paranormal beliefs) further studies providing results on the facet level might reveal further important associations.

The PCBS has already been used extensively in Belgium and has showed differential relationships with a number of variables, such as personality-profiles (Peeters, 2003), racism (Duriez, 2002b, Duriez et al., 1999, 2000, 2002; Duriez and Hutsebaut, 2000,), economic and cultural conservatism (Duriez et., 2002), authoritarianism and social dominance orientation (Duriz and Van Hiel, 2002), mental health (Luyten et al., 1998), and value orientations (Duriez et al., 2001; Fontaine et al., 2000). All these studies could be repeated (and extended) using UK and other cross-cultural samples. Additionally, Duriez et al. (2004) have introduced a shortened version of the PCBS consisting of 18 items, which has performed equally in



previous samples. This too could be tested on UK and other cross-cultural samples.

## **4.8 SUMMARY**

In summary then, this study showed that religious beliefs and paranormal beliefs are indeed associated, confirming initial exploratory studies that suggested some kind of relationship between the two (Goode, 2000; Haraldsson, 1981). The other mixed results reflect the need for further research in both religiosity and in particular paranormal beliefs to see if a consistent pattern of results may emerge.

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## **Appendices**

### **APPENDIX 1**

### **Revised Paranormal Belief Scale (RPBS), Tobayck**

**(1988)**

#### *Traditional Religious Beliefs*

1. The soul continues to exist though the body may die
8. There is a devil
15. I believe in God

22. There is a heaven and hell

### *Psi*

2. Some individuals are able to levitate (lift) objects through mental forces

9. Psychokinesis, the movement of objects through psychic powers, does exist

16. A person's thoughts can influence the movement of a physical object

23. Mind reading is not possible

### *Witchcraft*

3. Black magic really exists

10. Witches do exist

17. Through the use of formulas and incantations, it is possible to cast spells on persons

24. There are actual cases of witchcraft

### *Superstition*

4. Black cats can bring bad luck

11. If you break a mirror, you will have bad luck

18. The number "13" is unlucky

### *Spiritualism*

5. Your mind or soul can leave your body and travel (astral projection)

12. During altered states, such as sleep or trances, the spirit can leave the body

19. Reincarnation does occur
25. It is possible to communicate with the dead

*Extraordinary Life Forms*

6. The abominable snowman of Tibet exists
13. The Loch Ness monster of Scotland exists
20. There is life on other planets

*Precognition*

7. Astrology is a way to accurately predict the future
14. The horoscope accurately tells a person's future
21. Some psychics can accurately predict the future
26. Some people have an unexplained ability to predict the future

APPENDIX 2

**Post-Critical Belief Scale (PCBS), Hutsebaut (1996)**

*Second Naiveté*

1. The Bible holds a deeper truth which can only be revealed by personal reflection
2. If you want to understand the meaning of the miracle stories from the Bible, you should always place them in their historical context

6. The Bible is a guide, full of signs in the search for God, and not a historical account
10. Despite the fact that the Bible was written in a completely different historical context from ours, it retains a basic message
12. Because Jesus is mainly a guiding principle for me, my faith in him would not be affected if it would appear that he never actually existed as a historical individual
16. The historical accuracy of the stories from the Bible, is irrelevant for my faith in God
26. Despite the high number of injustices Christianity has caused people, the original message of Christ is still valuable to me
33. I still call myself a Christian, even though a lot of things that I cannot agree with have happened in the past in name of Christianity

### *Orthodoxy*

3. You can only live a meaningful life if you believe
4. God has been defined for once and for all and therefore is immutable
7. Even though this goes against modern rationality, I believe Mary truly was a virgin when she gave birth to Jesus
11. Only the major religious traditions guarantee admittance to God
14. Religion is the one thing that gives meaning to life in all its aspects
17. Ultimately, there is only one correct answer to each religious question
21. Only a priest can give an answer to important religious questions
25. I think that Bible stories should be taken literally, as they are written

### *External Critique*

5. Faith is more of a dream which turns out to be an illusion when one is confronted with the harshness of life
8. Too many people have been oppressed in the name of God in order to still be able to have faith
18. God is only a name for the inexplicable
20. The world of Bible stories is so far removed from us, that it has little relevance
22. A scientific understanding of human life and the world has made a religious understanding superfluous
27. In the end, faith is nothing more than a safety net for human fears
29. In order to fully understand what religion is all about, you have to be an outsider
30. Faith is an expression of a weak personality
32. Religious faith often is an instrument for obtaining power, and that makes it suspect

### *Relativism*

9. Each statement about God is a result of the time in which it is made
13. Ultimately, religion means commitment without absolute guarantee
15. The manner in which humans experience their relationship to God, will always be coloured by the times they live in
19. Official Church doctrine and other statements about the absolute will always remain relative because they are pronounced by human beings at a certain period of time

23. God grows together with the history of humanity and therefore is changeable
24. I am well aware that my beliefs are only one possibility among so many others
28. Secular and religious conceptions of the world give valuable answers to important questions about life
31. There is no absolute meaning in life, only giving directions, which is different for every one of us

APPENDIX 3  
**Shortened NEO-PI-R, Costa and McCrae (1978,  
1992, 1995)**

*Neuroticism + keyed*

1. Often feel blue
11. Shirk my duties
21. Am often down in the dumps
31. Have frequent mood swings
41. Panic easily

*Neuroticism – keyed*

6. Am very pleased with myself
16. Am not easily bothered by things
26. Feel comfortable with myself
36. Seldom feel blue

46. Rarely get irritated

*Extraversion + keyed*

- 7. Feel comfortable around people
- 17. Make friends easily
- 27. Am skilled in handling social situations
- 37. Am the life of the party
- 47. Know how to captivate people

*Extraversion – keyed*

- 2. Don't talk a lot
- 12. Don't like to draw attention to myself
- 22. Would describe my experiences as somewhat dull
- 32. Keep in the background
- 42. Have little to say

*Openness to Experience + keyed*

- 3. Believe in the importance of art
- 13. Have a vivid imagination
- 23. Tend to vote for liberal party candidates
- 33. Carry the conversation to a higher level
- 43. Enjoy hearing new ideas

*Openness to Experience – keyed*

- 8. Tend to vote for conservative political candidates

- 18. Do not enjoy going to art museums
- 28. Avoid philosophical discussions
- 38. Do not like art
- 48. Am not interested in abstract ideas

*Agreeableness + keyed*

- 9. Have a good word for everyone
- 19. Believe that others have good intentions
- 29. Respect others
- 39. Accept people as they are
- 49. Make people feel at ease

*Agreeableness – keyed*

- 4. Insult people
- 14. Get back at others
- 24. Suspect hidden motives in others
- 34. Cut others to pieces
- 44. Have a sharp tongue

*Conscientiousness + keyed*

- 5. Am always prepared
- 15. Pay attention to details
- 25. Get chores done right away
- 35. Carry out my plans
- 45. Make plans and stick to them



*Conscientiousness – keyed*

- 10. Shirk my duties
- 20. Don't see things through
- 30. Do just enough work to get by
- 40. Find it difficult to get down to work
- 50. Waste my time

APPENDIX 4

## Questionnaire Introduction

# Paranormal and Religious Beliefs Questionnaire

Chris Huntley, Psychology – Year 3

I am conducting research into paranormal and religious beliefs for my third year dissertation project. I would appreciate it if you could complete this questionnaire in full and return to either me or my box by the pigeon holes. This questionnaire is in accordance with BPS Ethical Guidelines.

The responses you give in this questionnaire will remain confidential, and you are only required to give your age and gender.

If you have any problems or questions please do not hesitate to contact me at:

[christopher.d.huntley@student.mmu.ac.uk](mailto:christopher.d.huntley@student.mmu.ac.uk)

Thank you very much for your help and time.

**Complete** as appropriate:

**Age:**

Circle as appropriate:

## Gender

Male

Female

Please turn and complete the questionnaires. Thank you.

## Appendix 5: Raw data.

The raw data are available on request.

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