

Psychological Characteristics of Believers in the Paranormal: A Replicative Study

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ABSTRACT: This study attempts to replicate a variety of previous findings pertaining to the psychological characteristics of believers and disbelievers in the paranormal. The 13-item Australian Sheep-Goat Scale, the 3-item Icelandic Sheep-Goat Scale, and a number of other psychological questionnaire measures were administered to 242 undergraduate psychology students at the University of Adelaide. Depending on which measure of the sheep-goat variable was used, believers in the paranormal were found to score significantly higher than disbelievers on the Wilson-Patterson Religion-Puritanism Scale; Haraldsson's 8-item Religiosity Scale; the As inventory of experiences predictive of hypnotizability; measures of vivid spiritual experience; and frequency of reading about Eastern religions or theosophy, of dream recall, and of dream interpretation; believers scored significantly lower than disbelievers on Mosher's Sex-Guilt Scale. As expected, believers were no more conservative overall than disbelievers, nor were they more likely to read the Bible or to have been religiously affiliated during their upbringing. Contrary to prediction, believers were no more likely than disbelievers to have a religious affiliation at the time of the survey.

Scientists in general, and psychologists in particular, have long held certain assumptions concerning both the *nature* of mental activities (especially wishes) and the *scope* of their operation in relation to the external world. According to Mackenzie and Mackenzie (1980), those assumptions can ultimately be traced back to Galileo. They are, in essence, that mental activities are nothing but brain activities, and that an organism's interaction with the physical world is mediated *only* via known and familiar processes in the nervous system.

The validity of these assumptions would be challenged, however, by any evidence suggesting that mental activity may occur *apart* from familiar neurological structures (e.g., data supporting the hypothesis of life after death), or by evidence of mind interacting with the world in ways that do not involve familiar and known sensorimotor systems (as is suggested by reports of extrasensory perception and psychokinesis). In each case, mental activities allegedly behave in ways that are "impossible," given long-standing scientific assumptions. It has thus become customary to describe such phenomena or processes as "paranormal," or "psi."

The existence of paranormal phenomena is the subject of lively and ongoing debate (see Kurtz, 1985; McCrone, 1993; Wolman, 1977). However, regardless of whether or not psi phenomena exist, there are individual differences in belief in their existence and in the ways in which such beliefs are used to explain human experiences. In fact, considerable research has

addressed the question of differences between those who, broadly speaking, believe in the paranormal hypothesis and those who do not (for the most recent and comprehensive review of the literature, see Irwin, 1993). However, a number of interesting findings relevant to the study of paranormal belief have been reported, but they have not yet been adequately replicated across laboratories. The need for replication in this area should be seen as at least as important to parapsychology as is replication of psi research results themselves, partly for the reason that the study of belief in the paranormal is now giving rise to theories of belief that are sometimes offered as alternatives to invoking the psi hypothesis (e.g., Irwin, 1992). It was thus the main purpose of this present project to attempt to replicate some of these findings. A brief overview of the variables selected and their history in the psychology of belief in the paranormal follows.

First, there is the variable of conservatism, which Wilson (1975, p. 10) defines as "resistance to change and the tendency to prefer safe, traditional and conventional forms of institutions and behaviour." Thalbourne (1994) recently examined the chaotic state of the data relating paranormal belief to the dimension of conservatism-liberalism, a variable that has been measured in a variety of fashions. The Wilson-Patterson Attitude Inventory (Wilson, 1975)-a well-constructed instrument used in much conservatism research but not previously used in the psychology of belief in the paranormal was administered to 115 subjects from a variety of sources. Subjects are presented with 50 conservatism-relevant items such as "learning Latin," "racial segregation" and "legal abortion" and are asked to say whether they favor it or not. It was found that overall, believers were no more likely to be conservative than were disbelievers. However, on one of the five subscales, Religion-Puritanism—which seems to measure a tendency towards fundamentalist Christianity-believers in the paranormal scored significantly higher than disbelievers did ($r = .29$, $p = .001$). Because it was a novel finding, this pattern of significance and nonsignificance is a good candidate for replication. Replication by the same experimenter is less valuable than one by a different experimenter, but it can indicate a variable of potential importance that others should attempt to replicate, if the tendency holds up.

A variable whose relationship to belief in the paranormal has shown very mixed results is nonsectarian religiosity. This may be defined as a group of attitudes and behaviors towards whatever is perceived to be divine or sacred that are independent of any sect to which the person may belong. An example of such an attitude is self-reported religiosity; an example of a behavior is prayer. Some researchers, such as Haraldsson (1981), Thalbourne (1984), Haraldsson and Houtkooper (1992) and Thalbourne and Delin (in press) have found that those who believe in the paranormal are also more likely to be religious in this sense, while others, such as McClenon (1990, 1992), using self-perceived religiosity, have found no such relation. A brief review of the relevant literature has recently been compiled by Thalbourne and Delin (in press), who concluded that use of

Haraldsson's measuring instruments was more likely to yield a significant correlation with paranormal belief than other measures. Thus, Haraldsson's 8-item Religiosity Scale—which has yielded three significant and no nonsignificant relations with belief in the paranormal—was to be used in this present study. As in Thalbourne and Delin (in press), some grounds for regarding the scale as valid can be gleaned from the fact that Religiosity Scale scores for those 120 persons currently affiliated with *any* religion (mean = 22.91, $SD = 4.65$) were significantly higher than those for the 122 subjects with *no* religion (mean = 15.66, $SD = 4.37$; $t = 12.51$, $df = 240$, $p < .001$, omega-squared = .39). The highest scores were obtained by the 60 Protestants (mean = 23.43), followed closely by the 53 Catholics (mean = 22.66) and the 7 persons of various other faiths (1 Jew, 3 Hindu or Buddhist, 3 Eastern Orthodox) (mean = 20.29), the mean for the 122 persons in the no-religion category being, as mentioned above, 15.66. A one-way analysis of variance comparing the four means showed the differences to be highly significant ($F(3,238) = 53.59$, $p < .0001$, eta-squared = .36), and the Scheffé test ($\alpha = .10$) revealed that while the means of the three religious groups were not significantly different from each other, each was significantly higher than the mean for the no-religion group. Because of the lack of adherents of Judaism and Eastern faiths, it is not yet possible to conclude that the Religiosity Scale measures anything more than a trans-sectarian Christianity. That it might be measuring this is supported by the observations that high scorers on the scale tend to report vivid religious or spiritual experiences ($r = .43$, $p < .001$), tend to read the Bible ($r = .65$, $p < .001$), and may or may not read about Eastern religions ($r = .07$, $p = n.s.$).

Also selected as variables in their own right were the two simple dichotomous items recording whether or not the respondent had been affiliated with a religion during their upbringing and whether they were so affiliated at the time of the survey. These two variables have been used in previous work: Thalbourne and Delin (in press) report a significant positive association between paranormal belief and being presently affiliated with a religion.

Three other religious variables deriving from the work of Haraldsson (1981) and mentioned above were also chosen. The first was that of having a vivid religious or spiritual experience. Haraldsson found a significant positive correlation of .25 ($N = 511$) between this variable and his Icelandic Sheep-Goat Scale, and Thalbourne and Delin (in press) found a significant correlation of .35 ($p < .001$) with a new 18-item version of the Australian Sheep-Goat Scale (Thalbourne & Delin, 1993). The second variable was frequency of reading the Bible, which Haraldsson reported as correlating “only very slightly with the Sheep-Goat Scale” (p. 305; $r = .09$, $N = 556$), whereas reading about Eastern religions and theosophy “correlated rather highly with belief in the psychic” (p. 305; $r = .32$, $N = 545$). The same pattern of results occurred in Thalbourne and Delin (in press): Bible-reading yielded a nonsignificant correlation of .08 and East-

ern religions a significant .38 ($p < .001$). It was predicted that this pattern of significance and nonsignificance would occur in the present study also. Another relevant variable is the relation between paranormal belief and hypnotizability. In a pilot study, Roney-Dougal (1979) administered to 10 subjects a belief scale based on the work of Palmer (1973), along with a slightly modified version of the Experience Inventory constructed by Ås, O'Hara, and Munger (1962). (See Ås, 1962, 1963, for validity studies.) She obtained a significantly high positive correlation between the two measures ($r = .87$, by my calculations), indicating that believers tend to report more experiences characteristic of persons who are hypnotizable. This finding was replicated with a new sample of 8 subjects, resulting in $r = .90$ (Roney-Dougal, 1982, 1987). A third, unpublished, experiment with 16 subjects produced a significant Spearman correlation of .57, and the combined three experiments with an N of 34 produced an overall correlation of .69 (Roney-Dougal, personal communication, May 26th, 1988). These results are extremely encouraging and are consistent with findings using other measures of hypnotizability (see Wickramasekera, 1991), but nevertheless it seemed desirable to replicate with a much larger sample, a more widely used sheep-goat scale, and with a different laboratory in a different country.

Entirely unreplicated is Carpenter's (1971) serendipitous discovery that disbelievers displayed higher levels of guilt about their sexual feelings. Thirty-one male students were classified as sheep or goats depending on their answers to the question, "Do you think ESP is possible given the conditions of this experiment?" Also administered was a sex-guilt scale devised by Mosher (1966). (The relevance of this test was that, unbeknownst to the subjects, some of the ESP target cards had erotic pictures taped to them.) For the sex-guilt scale, the 16 sheep averaged 36.81 points, whereas the 15 goats averaged 58.50—a significantly higher level of guilt ($p < .005$, no measure of strength of effect reported). As this finding may seem bizarre, I quote Carpenter's plausible explanation for it:

It would seem reasonable to assume that persons who are relatively high in guilt about experiences as unavoidably human as sexual feelings and ideas would feel more need than others to keep such experiences to themselves, and hence would be less comfortable in a world in which ESP is a real possibility. (Carpenter, 1971, p. 213)

One of the referees of this paper also made the interesting suggestion that both sexuality and ESP can involve a degree of interconnectedness with another person, and a longing for connectedness might lead a person to have both a low degree of sex guilt and a belief in ESP.

The final variables included in this survey were two that have been relatively better established than most of those described above, and which were included mainly because they were part of a suite of interesting questions made available by Haraldsson (1981). The first of these was dream recall, and the second was frequency of dream interpretation. A

positive though weak relation between belief in the paranormal and dream recall has been found by at least five different researchers in three different countries (Thalbourne & Delin, in press). To these we may add the recent findings of Haraldsson and Houtkooper (1992) and Thalbourne and Delin (in press), where the correlation coefficients were .17 ($p < .001$) and .18 ($p = .05$), respectively—small, but significant.

Frequency of dream interpretation has been found by Haraldsson (1981) and other authors to be positively related to belief in the paranormal, and usually to a greater extent than dream recall itself. Thalbourne and Delin (in press) have given an up-to-date review, and they found in their own data that there was a significant correlation of .36 ($p < .001$) between dream interpretation and paranormal belief. No failures to replicate this finding have been reported thus far. Any theory of the origins and functions of paranormal belief must therefore take these findings into account. To reinforce this, an objective of the present study was to examine whether these two rather well-established findings—regarding dream recall and dream interpretation—could be replicated again.

It was predicted that belief in the paranormal would display the *presence* of an association with 9 variables, and the *absence* of an association with 7 other variables: in detail, believers in the paranormal were expected to score higher on Religion-Puritanism (but not on overall Conservatism or on the other four of its subscales), higher on the Religiosity Scale, be more likely to have a religious affiliation (but not necessarily to have had a religious affiliation when growing up), to report vivid spiritual experience and a higher frequency of reading about Eastern religions but not Bible-reading, to recall their dreams better, to engage in dream-interpretation more frequently, and to score higher on hypnotizability and lower on sex-guilt.

METHOD

Subjects

A total of 242 students (85 males and 157 females) taking First- or Second-Year Psychology in 1988 at the University of Adelaide participated in this study. Ages ranged from 16 to 50 years ($M = 22$, $SD = 7$); the distribution was thus strongly skewed towards the younger end.

Test Instruments

A single questionnaire was constructed that contained all the demographic items and test instruments. In addition to asking about age, gender, marital status, religion of upbringing, and present religious affiliation, this questionnaire presented the following psychological tests, in order:

1. *The Wilson-Patterson Attitude Inventory* (Wilson, 1975). This test

presents the subject with 50 items such as "white superiority," "royalty," and "Sabbath observance." The person indicates for each of these whether they favor or believe in them by responding "yes," "?," or "no." An overall score is arrived at, with higher scores indicating greater conservatism. The five subscales of conservatism are: Religion-Puritanism, Ethnocentrism and Outgroup Hostility, Anti-Hedonism, Militarism-Punitiveness, and Realism (vs. Idealism).

2. *The 13-item Australian Sheep-Goat Scale.* This scale consists of the 10 items of the original Australian Sheep-Goat Scale (Thalbourne & Haraldsson, 1980; Thalbourne, 1981) augmented by three belief items (Thalbourne, 1985). The subject is presented with a statement about psi and asked to indicate whether this is true or false for them or whether they are uncertain. Higher scores indicate greater belief in and more alleged experience of psychic phenomena.

3. *Haraldsson's 8-item Religiosity Scale.* The items comprising this scale and the responses allowed can be found in Appendix A of Haraldsson (1981, nos. 1 through 8). Higher scores indicate greater degrees of religiosity. Results of various psychometric analyses of this scale can be found in Thalbourne and Delin (in press).

4. *Three other questions, also from Haraldsson (1981: Appendix A, nos. 9 through 11).* These items pertained to religion: "Have you ever had a vivid religious or spiritual experience?," "How often do you read the Bible?," and "Do you read books on Eastern religions or theosophy?"

5. *The 3-item Icelandic Sheep-Goat Scale.* Constructed by Haraldsson (1981; see also Thalbourne & Haraldsson, 1980), this scale contains items about belief in general extrasensory perception and precognition and frequency of reading about psychic phenomena. Higher scores are taken to indicate greater belief in ESP.

6. *Two dream-recall items.* Two questions, each with four possible responses, concerned frequency of dream recall (Haraldsson, 1981, Appendix A, nos. 12 and 13). The first was "Do you remember having dreamt last night?" (The choices were [1] I do not remember any dreams. [2] I vaguely remember part of a dream. [3] I clearly remember part of a dream. [4] I remember an entire dream.) The second question was "How often do you generally or usually remember your dreams?" (The responses were [1] almost never, [2] at least once a month, [3] at least once a week, [4] almost every night.) These two questions were added to produce a rudimentary Dream-Recall Scale, with higher scores indicating more recall.

7. *Dream interpretation.* This variable was assessed by a forced-choice item used by Haraldsson (1981, Appendix A, no. 14), namely, "Do you attempt to understand your dreams?" (never, seldom, now and then, often).

8. *The Survey of Belief in an Afterlife.* This questionnaire was originally described in Thalbourne and Williams (1984) as a method of studying what subjects believe happens to consciousness or the human personality at the

time of death, such as extinction, immortality, or reincarnation. The results, using an expanded version of this instrument, have been described in a separate paper (Thalbourne, submitted for publication).

9. *Roney-Dougal's modified version of the As Experience Inventory.* In this 60-item test, the subject is presented with a question about an experience designed to be predictive of hypnotizability and is asked to respond with "yes," "?," or "no." Responses are scored in such a way that higher scores indicate a greater degree of hypnotizability.

10. *Mosher's Sex-Guilt Inventory.* This inventory was devised by having university students respond to 25 open-ended statements such as "When I have sexual dreams" For each statement, two responses—representing opposite points of view—were then selected and paired with each other. An example is

WHEN I HAVE SEXUAL DREAMS . . .
 I sometimes wake up feeling excited. 0 1 2 3 4 5 6
 I try to forget them. 0 1 2 3 4 5 6

The subject is asked, for each of 25 open-ended statements, to rate as honestly as possible the extent to which they agree or disagree with the two responses given. These ratings are on a 7-point scale from 0 to 6, where 0 means "Not at all true of (or for) me" and 6 means "Extremely true of (or for) me." Higher scores indicate a greater amount of guilt about sex.

RESULTS

Descriptive statistics for all the research scales used can be found in Table 1.

Table 1
 RANGES, MEANS AND STANDARD DEVIATIONS FOR SCALAR VARIABLES ($N = 242$)

Scale	Theoretical Range	Actual Range	Mean	SD
13-item Australian Sheep-Goat Scale	0-26	0-26	13.23	6.29
3-item Icelandic Sheep-Goat Scale	3-12	3-12	7.59	1.83
Conservatism Scale	0-100	12-81	38.61	11.60
Religion-Puritanism	0-24	0-20	9.16	4.75
Ethno-Centrism	0-24	1-21	6.21	3.02
Anti-Hedonism	4-24	0-22	13.33	4.23
Militarism-Punitiveness	4-24	0-20	9.95	3.96
Realism	0-72	10-49	29.18	7.33
8-item Religiosity Scale	8-31	8-30	19.25	5.78
Dream Recall Scale	2-8	2-8	5.25	1.63
<i>As</i> Experience Inventory	60-180	101-166	131.14	10.90
Mosher Sex-Guilt Scale ^a	0-300	13-233	90.48	45.31

^a $N = 231$.

Notes on the Analysis of the Data

The relationships between the variables were examined using Pearson correlations. Although several of the research variables do not fulfill the criterion of being interval or ratio in level of measurement and thus arguably require a nonparametric correlation, results obtained using Pearson correlations would lead to conclusions very similar to those found for the present circumstances when using (let us say) Spearman correlations. Indeed, for large sample sizes such as we have here, the very values of the two coefficients and of their associated probabilities would tend to be identical.

As two different sheep-goat scales were used in this study, associations were considered strongly confirmed if the corresponding correlations were significant using both scales. Likewise, the absence of an association was strongly confirmed if neither scale yielded a significant correlation. In instances where one scale produced a significant correlation and the other did not, the association was considered partly confirmed.

The results, expressed as correlational data, are presented in Table 2. It should be noted that the probabilities have not been adjusted for multiple comparisons—such an adjustment would in any case be difficult, given the relatedness between many of the variables, a fact to which we shall return

Table 2
CORRELATIONS BETWEEN THE SHEEP-GOAT SCALES AND THE RESEARCH VARIABLES
(*N* = 242)

Variable	Australian Sheep-Goat Scale	Icelandic Sheep-Goat Scale
Icelandic Sheep-Goat Scale	.67***	—
Conservatism Scale	.07	-.11
Religion-Puritanism	.18**	-.03
Ethnocentrism	.05	-.07
Anti-Hedonism	.01	-.10
Militarism-Punitivism	-.04	-.11
Realism	-.01	.04
8-item Religiosity Scale	.23***	.05
Religion in Upbringing	-.01	.03
Religiously Affiliated now	.03	-.08
Vivid Religious or Spiritual Experience	.22***	.13*
Bible-Reading	.07	.01
Reading about Eastern Religions	.22***	.32***
Dream Recall Scale	.13*	.16*
Dream Interpretation	.21***	.11
As Experience Inventory	.35***	.29***
Mosher Sex Guilt Scale	-.07	-.19**

Note: All probabilities are two-tailed.

* $p \leq .05$.

** $p \leq .01$.

*** $p \leq .001$.

in the Discussion. However, some significant results may be due to chance, especially when only one Sheep-Goat Scale yields significance. The correlation between the two Sheep-Goat scales was .67, indicating that in the present investigation the two scales had 45 % of the variance in common. There was thus a fairly large but nevertheless imperfect degree of overlap between scores on the two scales.

All of the predictions (except in regard to present religious affiliation) were borne out to a greater or lesser degree. The presence of four of these associations (dream recall, vivid religious experience, reading about Eastern religions and theosophy, and hypnotizability as measured by the Ås Inventory) and the absence of six possible associations (conservatism, ethnocentrism, anti-hedonism, militarism-punitivism, religious affiliation during upbringing, and Bible-reading) were confirmed using both Sheep-Goat scales. In addition, a positive association was found with Religion-Puritanism, the 8-item Religiosity Scale, and dream interpretation, but only using the Australian Sheep-Goat Scale. On the other hand, a negative association with paranormal belief was found with sex-guilt, but only using the Icelandic Sheep-Goat Scale. (A post hoc analysis sought to examine whether this relation held differently for the two genders, but no clear sex differences emerged.)

Perhaps because of the sensitive nature of the Mosher Sex-Guilt Scale, a greater than average number of subjects—mainly women—made errors in filling it out; or, once started, refused to finish it. Thus, the total number of correctly completed guilt-scales was 231 rather than 242. It is also of note that the mean guilt-score for the group of 231, namely, 90.48, is considerably higher than that which can be computed from Carpenter's (1971) report, namely, 47.32. This can be explained in part by the fact that Carpenter's group was entirely male, while the present study comprised both sexes, and women score significantly higher on the measure of sex-guilt; for males, the mean was 76.8; for females, the mean was 98.2, $t = 3.52$, $df = 229$, $p = .001$, $\omega^2 = .05$. Even so, the difference between the two sets of males is still rather large. Possibly cultural or even generational factors contributed to the difference.

DISCUSSION

The results, though generally favorable to the hypotheses, show rather clearly that the use of different measures of the sheep-goat variable—even highly correlated ones—can sometimes yield differing patterns of results. Moreover, the desirability of replication in the psychology of belief in the paranormal is underscored by the observation that in the case of two variables (the Religiosity Scale and Dream Interpretation) the associations with the Icelandic Sheep-Goat Scale were not significant in these Australian data, even though they had been originally so in previous studies in Iceland (Haraldsson, 1981)—the very research that was one of the inspirations for the current study.

The results of the correlations between the predictor variables themselves are not without interest, and merit a few summary remarks.

First, the subscales of the Conservatism Scale showed substantial inter-correlations with each other. This is to be expected because they were derived by oblique rotation factor analysis (Wilson, 1975, p. 21). The measures of religiosity (including the Religion-Puritanism subscale, but excluding the Eastern religions variable) also tended to be correlated, more so in the case of presently being affiliated with a religion than with being so affiliated during one's upbringing. This lends some concurrent validity to these measures and strengthens our confidence that a real construct is being measured.

More interesting is the fact that Conservatism (and especially the Religion-Puritanism subscale), along with the measures of religiosity and sex-guilt, tended to correlate rather highly with each other (e.g., .76 [$p < .001$] between Religion-Puritanism and the Religiosity Scale; .61 [$p < .001$] between Conservatism and sex-guilt; .47 [$p < .001$] between sex-guilt and the Religiosity Scale). On the other hand, variables such as dream recall, dream interpretation, and hypnotizability tended to be related to each other but not to the conservatism/religiosity/sex-guilt triad. These data therefore permit the tentative conclusion that those who believe in the paranormal appear to have *some* characteristics from *both* clusters of variables. In particular, believers tend to be involved with their own internal psychological states, whether they be dreams, experiences related to hypnotizability, or those of a religious character, as well as being more accepting of sexual feelings rather than being guilty about them. The typical *disbeliever* in the paranormal has less recall of their dreams, spends little time in analyzing them, is less likely to be hypnotizable, shows little interest in religious issues, and may take a more repressive line towards matters sexual. The degree of replication shown by these findings, considering not only this study but its predecessors, is moderately impressive, and moves us closer to the time when well-attested elements can be more confidently incorporated into theoretical models.

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