# PARANORMAL BELIEF AND RELIGIOSITY

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ABSTRACT: The findings of past research on the relationship between paranormal belief and religiosity are inconclusive. The aim of this study was to examine the relationship based on a sample from Austria and also with respect to different aspects of paranormal belief as well as religious belief. A sample of 596 students completed a measure of paranormal belief and a questionnaire on various indices of religiosity. The results revealed rather low but significant correlations between paranormal belief and religiosity. Intrinsic religiosity and self-reported religiosity were much more strongly related to paranormal belief than was extrinsic religiosity. For subjects without religious affiliation, the relationship between religiosity and paranormal belief was higher than for Catholics and Protestants. These results suggest a modified version of the substitution hypothesis indicating that paranormal belief can be, but must not necessarily be, a substitute for traditional religion.

A number of studies have examined the relationship between paranormal belief and religiosity. In accordance with the hypothesis that paranormal belief functions as a substitute for religious belief, some authors have reported a negative relationship between paranormal belie and measures of religious belief (Emmons & Sobal, 1981; Persinger Makarec, 1990; Beck & Miller, 2001). However, this negative relationshi could also be interpreted as a manifestation of rejection of at least some paranormal beliefs (precognition and superstition) by the Catholic Church (Goode, 2000; Sparks, 2001). In contrast to the substitution theory, there exists the hypothesis that people who believe in angels or wondrous healings also believe in other paranormal phenomena such as ghosts and voodoo (Irwin, 1993; Rice, 2003). Thus, the paranormal is undoubtedly a common characteristic of both religion and parapsychology, although in our times the paranormal is probably losing its importance in most religions. Related to the fact that the paranormal is common to religion and parapsychology is the theory of a common worldview (Zusne & Jones, 1989). Religiosity and paranormal belief imply a belief in the existence of phenomena that currently cannot be explained by science, be it phenomena such as psi (extrasensory perception and psychokinesis) or the belief in life after death or God. The acceptance of these phenomena allows the believer to have a different worldview, one that shows the world as being more humane and having greater meaning. Such an animistic world does not obey mechanical scientific laws and is not reducible to materialism. In line with this reasoning, some studies indicate a rather small (around r = .20) but positive relationship between both constructs (Haraldsson, 1981: Irwin, 1985: Goode, 2000). Thalbourne (2003) even

describes the substitution theory as an "urban myth" because in seven out of nine studies he found positive correlations between paranormal belief and religiosity (the coefficients were between r = .20 and r = .55). For a German sample, Thalbourne and Houtkooper (2002) reported a correlation of r = .54 between the Australian Sheep-Goat Scale and religiosity.

Orenstein (2002) concluded that past studies could not clearly show whether religious belief is related positively, negatively, or not at all to paranormal belief.

A study by Thalbourne and O'Brien (1999) on Australian participants shows that the direction of the relationship may depend on the measurements selected. They obtained an almost significant negative correlation (r = -.17) between the Australian Sheep-Goat Scale (Thalbourne & Delin, 1993) and the Religion-Puritanism Scale from the Wilson-Patterson Attitude Scale (Wilson, 1975), a correlation close to zero with the subscale traditional religiosity (r = .07) from the Paranormal Belief Scale (PBS, Tobacyk & Milford, 1983), and a significant and positive coefficient with the religiosity scale of Haraldsson (derived from Haraldsson, 1981).

Another reason why the previous results for the relationship between religious belief and paranormal belief are difficult to compare or generalise is the heterogeneity of the samples that were examined. he samples differ not only with respect to ethnicity or nationality but lso, most importantly for this question, with respect to their religious affiliation. For example, in the study by Thalbourne and O'Brien (1999), the sample consisted mainly of Protestants; in a study by Thalbourne and Hensley (2001), which reported a correlation of .30 between a religiosity scale and the Icelandic Sheep-Goat Scale (Haraldsson, 1981), nearly one third of the subjects from Washington University in St. Louis were Jewish, Protestant, and Catholic, respectively. Other studies do not include information concerning the religious affiliation of their sample, although in some instances it can be guessed (e.g., Beck and Miller, 2001, who found a negative relationship between paranormal belief and religiosity, hinted that they recruited their subjects from a "Christian affiliated institution"). Thalbourne and O'Brien (1999) analysed the influence of current religious affiliations and showed that, aside from Spiritualists, participants without religious affiliation had the highest belief in the paranormal.

One aim of the current study was to assess the relationship between religiosity and paranormal belief in a larger sample from Austria, controlling for religious affiliation. The larger sample was used to ensure that the different religious affiliations were represented, although it is clear that in Austria, with its largely Catholic society, we would not get an equal number of participants with a random sample. The other purpose was to include not only different aspects of paranormal belief but also different aspects of religious belief, such as intrinsic religiosity and extrinsic religiosity, as was suggested by Sparks (2001). We had not derived specific hypotheses for all variables investigated, but generally we assumed that for participants without religious affiliation the relationship between intrinsic religiosity and quest on the one hand and paranormal belief on the other hand would be higher than for participants with religious affiliation.

## METHOD

### Participants

A total of 596 participants were selected for this study. They were 422 (70.8%) female and 174 (29.2%) male students from two universities in Vienna: the Technical University (n = 126) and the main University of Vienna (n = 470, of whom the majority, 64.8%, were psychology students). The mean age of the total sample was 22.29, ranging from 18 to 65 (with a standard deviation of 6.12). With respect to religious affiliation, 421 participants (70.6%) were Catholic; 92 (15.4%) were without religious affiliation; 53 (8.9%) were Protestant; 20 (3.3%) were unspecified, other, or single denominations (Taoist, Buddhist, Adventist, etc.); and 10 (1.7%) Moslem.

## Procedure

All participants completed a questionnaire containing the PBS (Tobacyk & Milford, 1983), the Intrinsic/Extrinsic Religiosity Scale of Gorsuch and McPherson (1989) and the scale "quest" by Batson and Schoenrade (1991) in German translation (Küpper & Bierhoff, 1999). The PBS assesses paranormal belief across a wide domain, including the subscales traditional religious belief (e.g., "There is a devil"; "There is heaven and hell"), psi (e.g., "A person's thoughts can influence the movement of a physical object"), witchcraft (e.g., "Black magic really exists"; "There are actual cases of death from Voodoo"), superstition (e.g., "Black cats can bring bad luck"; "If you break a mirror, you will have bad luck"), spiritualism (e.g., "It is possible to communicate with the dead"; "Reincarnation does occur"), extraordinary life forms (e.g., "The Loch Ness monster of Scotland exists"; "Big Foot exists"), and precognition (e.g., "Some people have the ability to predict the future"). The scale consists of 25 items that are assessed on a 5-point scale. The scale intrinsic religiosity is supposed to measure religiosity from inner conviction with 8 items on a 9-point Likert scale (sample item: "It is important for me to devote time to personal thoughts and prayers"). Extrinsic religiosity has an instrumental function as a source of well-being and consolation and is measured with 6 items on a 9-point Likert scale (sample item: "I go to church mainly to meet people I like"). Quest measures the degree to which participants pose to themselves existential questions. The quest scale consists of 12 items that are assessed on a 9-point Likert-scale (sample item: "I persistently scrutinize my own religious convictions").

Moreover, the sample was asked to specify socio-demographic variables (age, sex) and attendance at church/religious gatherings. The questionnaire also contained two single questions on 5-point Likert Scales with regard to religious belief and paranormal belief ("How religious would you describe yourself as being?" and "Do you believe in paranormal phenomena?").

### RESULTS

First, descriptive statistics and reliabilities of the scales were calculated. The mean of the PBS was 71.01 (SD = 19.17) with a range from 25 to 121. The internal consistency (Cronbach's Alpha) of the PBS was .91 for the whole sample. For the quest scale the mean was 59.47 (SD = 17.33) with a range from 20 to 101. The internal consistency for quest was .83. Intrinsic religiosity had a mean of 30.93 (SD = 13.21) with a range from 8 to 70. Cronbach's Alpha was .81. For extrinsic religiosity the mean of the scale was 17.15 (SD = 7.93), ranging from 6 to 43. The internal consistency was .70. The correlations between the scales of religiosity (intrinsic religiosity, extrinsic religiosity, quest, and traditional religiosity of the PBS) were not significant except for the correlations between traditional religiosity and quest, r (594) = .52, p < .01, and between traditional religiosity and quest, r (594) = .23, p < .01. For all variables, the assumption of normality was satisfied, because the skewness of all variables was under 2 and the kurtosis under 7 (Curran, West, & Finch, 1996).

A multivariate analysis of variance (MANOVA), with religious affiliation (which contained only groups with a sufficient number of people in our sample, i.e., Protestants, participants without religious affiliation, and Catholics) as the independent variable, and the subscales of the PBS (without traditional religious belief) as dependent variables, was calculated. Although BOX M's Test of multivariate normality was significant and the number of participants in the groups was highly unequal, Mardia's test (DeCarlo, 1997) was not significant, suggesting that the violations are not extreme. As a precaution, following the argumentation of Stevens (1996), we selected the interpretation of the Pillai-Bartlett trace because of its greater robustness against violations of the assumptions of multivariate normality (Stevens, 1996). The results of the MANOVA revealed no significant differences between the different religious affiliations, F(12, 1112) = 1.21, p > .05.

Next, correlations between measures of religious belief and paranormal belief were computed for the total sample (Table 1).

| Orbit EL (17 - 550) |        |           |           |             |        |        |  |
|---------------------|--------|-----------|-----------|-------------|--------|--------|--|
|                     | Quest  | Intrinsic | Extrinsic | Religiosity | Church | Tradit |  |
| PBS_w               | .15**  | .12**     | .06       | .20***      | 04     | .43*** |  |
| Psi                 | .12**  | .10*      | .03       | .18***      | 02     | .35*** |  |
| Witchcraft          | .10*   | .09*      | .02       | .13**       | 05     | .31*** |  |
| Superstition        | .04    | .05       | .10*      | .07         | .01    | .25*** |  |
| Spiritualism        | .16*** | .11*      | .04       | .21***      | 04     | .38*** |  |
| ExtraLife           | .06    | .04       | .07       | .06         | 01     | .20*** |  |
| Precognition        | .13**  | .13**     | .04       | .15***      | 02     | .33*** |  |
| Belief              | .07    | .14**     | .05       | .22***      | 03     | .37*** |  |
|                     |        |           |           |             |        |        |  |

TABLE 1 Correlations Between Religiosity and Paranormal Belief for the Total Sample (N = 596)

\**p*<.05,\*\**p*<.01,\*\*\**p*<.001

*Note.* PBS\_w: PBS total score without the traditional religiosity subscale; Belief: single question regarding paranormal belief; Church: frequency of attendance of church/religious gatherings; Religiosity: single question regarding religiosity; Tradit: traditional religiosity.

As can be seen, paranormal belief has substantial correlations with self-reported religiosity (single question: "How religious would you describe yourself as being?"). The correlation with the total score of the PBS (without traditional religious belief) amounted to r (594) = .20, p < .001, and the correlation with self-reported paranormal belief was r (594) = .22, p < .001. For the PBS, the highest coefficients were found with the subscales psi and spiritualism. Even higher correlations were recorded between traditional religious belief (as part of the PBS) and the other PBS subscales.

 TABLE 2

 MULTIPLE CORRELATIONS BETWEEN RELIGIOSITY INDICES AND PARANORMAL BELIEF

 FOR THE VARIOUS RELIGIOUS AFFILIATIONS (N = 566)

|             | Quest | Intrinsic | Extrinsic | Religiosity | Church | Tradit |
|-------------|-------|-----------|-----------|-------------|--------|--------|
| Protestants | .24   | .30       | .40       | .27         | .28    | .57*   |
| Without     | .38   | .43*      | .16       | .41*        | .15    | .60*** |
| Catholics   | .14   | .19*      | .12       | .26***      | .11    | .46*** |

*Note.* The multiple correlations result from regression analyses with each index of religiosity as criterion and all subscales of paranormal belief as predictors. Church: frequency of attendance of church/religious gatherings; Religiosity: single question regarding religiosity; Tradit: traditional religiosity.

Multiple correlations between the different indices of religiosity and all aspects of paranormal belief revealed interesting results. (In Table 2, notice that the multiple correlations give no information on the direction of the relationship, as the coefficients are necessarily positive.)

Not surprisingly, the relationship of paranormal belief to traditional religiosity (which is part of the PBS) is the highest, and this is true for all religious affiliations. For people without religious affiliation, paranormal belief seems to be related to self-reported religiosity and intrinsic religiosity (both coefficients are significantly higher than those of Catholics, p < .05; the statistical comparison of the correlations follows Clauss & Ebner, 1982). For Protestants, on the other hand, the relationship with extrinsic religiosity is stronger than for Catholics, multiple R (566) = .40 versus R (566) = .12, p < .05. Apart from that, no differences are significant.

Regression analyses further clarified the type of relationship between paranormal belief and religiosity with respect to religious affiliation. For the regression analyses the criterion was the total score of the PBS (without traditional religiosity). Predictors were self-reported religiosity, church attendance, quest, and intrinsic respectively extrinsic religiosity. For the total sample (n = 590), only self-reported religiosity (Beta = .24, p < .001) and church attendance (Beta = .17, p < .01) were significant predictors of paranormal belief, R(584) = .26,  $R^2 = .067$ , Durbin Watson = 1.84. For Catholics (n = 419), as can be expected, the results were quite the same (self-reported religiosity and church attendance were the only significant predictors of paranormal belief). For Protestants (n = 52), self-reported religiosity (Beta = .53, p < .01) and intrinsic religiosity (Beta = -.59, p < .01) were significant predictors of paranormal belief, R(46) = .51,  $R^2 = .26$ , Durbin Watson = 2.26, with intrinsic religiosity negatively related to paranormal belief. In contrast, for participants without religious affiliation (n = 91), intrinsic religiosity was the only, although positively related, significant predictor of paranormal belief: Beta = .35, p < .05, R (85) = .45,  $R^2$  = .20, Durbin Watson = 2.14.

| Quest | Intrinsic   | Extrinsic   | Religiosity   | Church  | Tradit   |  |  |
|-------|---|---|---|---|--|--|--|
| .11*  | .14**   | .07   | .20**   | 02  | .45***   |  |  |
| .12*  | .13**   | .04   | .21**   | .00   | .36***   |  |  |
| .08   | .07   | .01   | .11*  | 07  | .31***   |  |  |
| .01   | .00   | .12*  | .04   | .02   | .26***   |  |  |
| .13** | .15**   | .04   | .22***  | -01   | .41***   |  |  |
| .03   | .02   | .06   | .07   | .01   | .21***   |  |  |
| .10*  | .17**   | .03   | .14**   | .00   | .30***   |  |  |
| .10*  | .16**   | .03   | .23***  | 04  | .35***   |  |  |
|       | Quest<br>.11*<br>.12*<br>.08<br>.01<br>.13**<br>.03<br>.10*<br>.10* | Quest         Intrinsic           .11*         .14**           .12*         .13**           .08         .07           .01         .00           .13**         .15**           .03         .02           .10*         .17**           .10*         .16** | Quest         Intrinsic         Extrinsic           .11*         .14**         .07           .12*         .13**         .04           .08         .07         .01           .01         .00         .12*           .13**         .15**         .04           .03         .02         .06           .10*         .17**         .03 | Quest         Intrinsic         Extrinsic         Religiosity           .11*         .14**         .07         .20**           .12*         .13**         .04         .21**           .08         .07         .01         .11*           .01         .00         .12*         .04           .13**         .15**         .04         .22***           .03         .02         .06         .07           .10*         .17**         .03         .14**           .10*         .16**         .03         .23*** | Quest         Intrinsic         Extrinsic         Religiosity         Church           .11*         .14**         .07         .20**        02           .12*         .13**         .04         .21**         .00           .08         .07         .01         .11*        07           .01         .00         .12*         .04         .02           .13**         .15**         .04         .22***         -01           .03         .02         .06         .07         .01           .10*         .17**         .03         .14**         .00           .10*         .16**         .03         .23***        04 |  |  |

TABLE 3

CORRELATIONS BETWEEN RELIGIOSITY AND PARANORMAL BELIEF FOR CATHOLICS (N = 491)

\*p < .05, \*\*p < .01, \*\*\*p < .001

|              | (N=53) |           |           |             |        |        |  |
|--------------|--------|-----------|-----------|-------------|--------|--------|--|
|              | Quest  | Intrinsic | Extrinsic | Religiosity | Church | Tradit |  |
| PBS_w        | .04    | 21        | .17       | .18         | 07     | .59*** |  |
| Psi          | .10    | 17        | .07       | .10         | 03     | .53*** |  |
| Witchcraft   | .01    | 17        | .12       | .16         | 11     | .52*** |  |
| Superstition | .09    | 07        | .03       | .08         | .01    | .18    |  |
| Spiritualism | .02    | 15        | .12       | .22         | 07     | .57*** |  |
| ExtraLife    | .04    | 10        | .35*      | 01          | .00    | .33*   |  |
| Precognition | 10     | 23        | .09       | .15         | 11     | .48*** |  |
| Belief       | 01     | 05        | .08       | .12         | 04     | .48*** |  |

TABLE 4 CORRELATIONS BETWEEN RELIGIOSITY AND PARANORMAL BELIEF FOR PROTESTANTS (N = 53)

\*p < .05, \*\*p < .01, \*\*\*p < .001

TABLE 5CORRELATIONS BETWEEN RELIGIOUS AND PARANORMAL BELIEF FOR SUBJECTSWITHOUT RELIGIOUS AFFILIATION (N = 92)

|              | Quest | Intrinsic | Extrinsic | Religiosity | Church | Tradit |
|--------------|-------|-----------|-----------|-------------|--------|--------|
| PBS_w        | .23*  | .42***    | .13       | .39***      | .01    | .58*** |
| Psi          | .12   | .25*      | .05       | .29**       | .04    | .44*** |
| Witchcraft   | .17   | .35**     | .11       | .27*        | .03    | .49*** |
| Superstition | .10   | .21       | .05       | .22*        | .01    | .31*** |
| Spiritualism | .21   | .36***    | .12       | .39***      | .02    | .54*** |
| ExtraLife    | .04   | .32**     | .09       | .18         | .05    | .27**  |
| Precognition | .27** | .24*      | .05       | .28**       | 04     | .50*** |
| Belief       | .03   | .28**     | .03       | .27*        | .07    | .47*** |

p < .05, \*\*p < .01, \*\*\*p < .001

*Note.* PBS\_w: PBS total score without traditional religiosity subscale; Belief: single question regarding paranormal belief; Church: frequency of attendance of church/religious gatherings; Religiosity: single question regarding religiosity; Tradit: traditional religiosity.

Tables 3-5 show in detail the correlations between the different aspects of paranormal belief and religiosity for Catholics, Protestants, and participants without religious affiliation, respectively.

Because the sample size was greater, many coefficients for the Catholics are significant. Nevertheless, apart from traditional religiosity (which possibly reflects response style, because these items were provided within the questionnaire concerning paranormal belief), the relationship between religiosity and paranormal belief seems not to be very high for Catholics and Protestants. Confirming the results of the regression analyses, for Protestants paranormal belief is to some extent negatively related to intrinsic religiosity, and for participants without religious affiliation it is the opposite. Participants without religious affiliation also reveal the highest relationship between paranormal belief and intrinsic religiosity as well as with self-reported religiosity. The correlation of the total score of paranormal belief with intrinsic religiosity is r (90) = .42, p < .001 and with self-reported religiosity, r (90) = .39, p < .001. Naturally, church attendance or extrinsic religiosity plays no role for them.

In short, a moderate positive relationship was found between paranormal belief and religiosity. The relationship was much stronger for indices such as intrinsic religiosity or self-reported religiosity than for measures of extrinsic religiosity (which show no correlations with paranormal belief). If one compares the different religious affiliations, the relationship between paranormal belief and religiosity is much higher for participants without religious affiliation than for Catholics and Protestants. (Protestants even show a negative relationship to paranormal belief, which means the higher the intrinsic religiosity of Protestants, the lower is the paranormal belief.) For these participants, intrinsic religiosity and selfreported religiosity were, above all, strongly related to paranormal belief.

#### DISCUSSION

Studies previously undertaken to examine the relationship between religiosity and paranormal belief have already been able to establish some evidence of a positive relationship between these two constructs. The aim of the current study was to consider different aspects of religiosity as well as different aspects of paranormal belief. Another aim was to compare the results with regard to religious affiliation. In contrast to some studies (Beck & Miller, 2001; Emmons & Sobal, 1981), our results suggest an overall positive relationship between traditional religiosity and the other subscales of the PBS among Austrian students, especially with belief in psi, spiritualism, and precognition, confirming the results of Haraldsson (1981). Therefore, we conclude, contrary to Thalbourne and O'Brien (1999), that the association between paranormal belief and religiosity is not restricted to Iceland. However, it is necessary to exercise caution in interpreting this result, as the high correlations among all subscales of the PBS could also indicate the presence of answering in accordance with response style. Aside from these results, for the entire sample, paranormal belief is mainly related to self-reported religiosity (this is in line with Thalbourne & Hensley, 2001) and to some extent also with the quest scale. However, for Catholics the relationship to paranormal belief is small, as it also is for Protestants, who even exhibit a negative correlation between intrinsic religiosity and paranormal belief. Although participants without religious affiliation report themselves as less religious, and although they have the lowest values on all the religiosity scales (note, however, that only extrinsic religiosity is significantly lower in comparison to Protestants and Catholics), if they do believe in paranormal phenomena to some extent, this belief is accompanied by religiosity (primarily intrinsic religiosity). These results concerning the participants without religious affiliation are partly in accordance with the hypothesis that paranormal belief functions as a substitute for religious belief (Persinger & Makarec, 1990; Thalbourne & O'Brien, 1999).

Perhaps past inconclusive results with respect to the relationship between paranormal belief and religion can be explained by the fact that most researchers either report correlations to support the thesis of a relationship between paranormal belief and religiosity (such as Thalbourne & Brien, 1999; Thalbourne & Hensley, 2001) or they report differences between religious and nonreligious participants (such as Williams, Taylor, & Hintze, 1989), but not both of the analyses (Tobacyk & Pirttilae-Backman, 1992, are an exception). But from lower religiosity for believers in paranormal phenomena it does not necessarily follow that on average there is no relationship to paranormal belief. Thus, our results suggest a modified version of the substitution hypothesis: for participants without religious affiliation, paranormal belief is a possible substitute for traditional religion, and if they report themselves as religious they believe across the board in religion and the paranormal. But most of them believe neither in paranormal phenomena (as is the case of people with a religious affiliation) nor in a traditional religion; in all indices of religious belief, participants without religious affiliation have the smallest values. In any case, it can be assumed that people without religious affiliation do not differentiate much between the contents of the paranormal and those of religion.

The results of our study underline that it is necessary to compare different religious affiliations with regard to the relationship to paranormal belief. They also show that both religiosity and paranormal belief are multidimensional constructs that do not allow a simple answer to the question of whether paranormal belief and religious belief are related.

Although we believe that our results can be generalized to some extent, at least within Western societies, in some respects the validity of our results is restricted to young students in Austria, who, despite the country's predominantly Catholic history, nowadays live in a rather secularized cultural context and are not very religious in the traditional sense. It would be interesting to see whether these results also hold for highly religious people in the traditional meaning of the word. One other obvious limitation of our research is that the group with a different religious orientation was not of equal size to the others and that our sample did not contain enough people of other major religions (e.g., Jews, Moslems, or Buddhists). Further research is needed to accomplish this goal.

#### References

- BATSON, C. D., & SCHOENREDE, P. A. (1991). Measuring religion as quest: 2, Reliability concerns. *Journal for the Scientific Study of Religion*, 30, 430-447.
- BECK, R., & MILLER, J. P. (2001). Erosion of belief and disbelief: Effects of religiosity and negative affect on beliefs in the paranormal and supernatural. *The Journal of Social Psychology*, 14, 277-287.
- CLAUSS, E., & EBNER, F. (1982). Statistik für Soziologen, Pädagogen, Psychologen und Mediziner [statistics for sociologists, pedagogics, psychologists and physicians]. Frankfurt: Deutsch.
- CURRAN, P. J., WEST, S. G., & FINCH, J. F. (1996). The robustness of test statistics to nonnormality and specification error in confirmatory factor analysis. *Psychological Methods*, 1, 16-29.
- DECARLO, L. T. (1997). On the meaning and use of kurtosis. Psychological Methods, 2, 292-307.
- EMMONS, C. F., & SOBAL, J. (1981). Paranormal beliefs: Functional alternatives to mainstream religion? *Review of Religious Research*, 22, 310-312.
- GOODE, E. (2000). Two paranormals or two and a half? An empirical exploration. Skeptical Inquirer, 24, 29-35.
- GORSUCH, R. L., & MCPHERSON, S. E. (1989). Intrinsic/extrinsic measurement: I/E revised and single item scales. Journal for the Scientific Study of Religion, 28, 348-354.
- HARALDSSON, E. (1981). Some determinants of belief in psychical phenomena. Journal of the American Society for Psychical Research, 75, 297-309.
- IRWIN, H. J. (1985). A study of the measurement and the correlates of paranormal belief. *Journal of the American Society for Psychical Research*, **79**, 301-326.
- IRWIN, H. J. (1993). Belief in the paranormal: A review of the empirical literature. Journal of the American Society for Psychical Research, 87, 1-39.
- KUPPER, B., & BIERHOFF, H. (1999). Liebe Deinen Nächsten, sei hilfreich . . . Hilfeleistung ehrenamtlicher Helfer im Zusammenhang mit Motiven und Religiosität. [Love Your Neighbour, do good to him . . . The helping behaviour of volunteers in relation to motives and religiosity]. Zeitschrift für Differentielle und Diagnostische Psychologie, 20, 217-230.
- ORENSTEIN, A. (2002). Religion and paranormal belief. Journal for the Scientific Study of Religion, 41, 301-311.
- PERSINGER, M. A., & MAKAREC, K. (1990). Exotic beliefs may be substitutes for religious beliefs. *Perceptual and Motor Skills*, **71**, 16-18.
- RICE, T. W. (2003). Believe it or not: Religious and other paranormal beliefs in the United States. *Journal for the Scientific Study of Religion*, **42**, 95-106.
- SPARKS, G. G. (2001). The relationship between paranormal beliefs and religious beliefs. *Skeptical Inquire*, 25, 50-56.
- STEVENS, J. (1996). Applied multivariate statistics for the social sciences. Hillsdale, NJ: Lawrence Erlbaum.

- THALBOURNE, M. A. (2003). Theism and belief in the paranormal. Journal for the Society for Psychical Research, 67, 208-210.
- THALBOURNE, M. A., & O'BRIEN, R. (1999). Belief in the paranormal and religious variables. Journal of the Society for Psychical Research, 63, 110-122.
- THALBOURNE, M. A., & DELIN, P. S. (1993). A new instrument for measuring the sheep-goat variable: Its psychometric properties and factor structure. *Journal of the Society for Psychical Research*, 59, 172-186.
- THALBOURNE, M. A., & HENSLEY, J. H. (2001). Religiosity and belief in the paranormal. Journal of the Society for Psychical Research, 65, 47.
- THALBOURNE, M. A., & HOUTKOOPER, J. M. (2002). Religiosity/spirituality and belief in the paranormal: A German replication. *Journal of the Society for Psychical Research*, 66, 113-115.
- TOBACYK, J. J., & MILFORD, G. (1983). Belief in paranormal phenomena: Assessment instrument development and implications for personality functioning. Journal of Personality and Social Psychology, 44, 1029-1037.
- TOBACYK, J. J., & PIRTTILAE-BACKMAN, A. M. (1992). Paranormal beliefs and their implications in university students from Finland and the United States. *Journal of Cross-Cultural Psychology*, 23, 59-71.
- WILLIAMS, R. N., TAYLOR, C. B., & HINTZE, W. J. (1989). The influence of religious orientation on belief in science, religion, and the paranormal. *Journal of Psychology and Theology*, 17, 352-359.
- WILSON, G. D. (1975). Manual for the Wilson-Patterson Attitude Inventory. Windsor: NFER Publishing.
- ZUSNE, L., & JONES, W. H. (1989). Anomalistic psychology: A study of magical thinking. Hillsdale, NJ: Lawrence Erlbaum.

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