

Gender Differences in Paranormal Belief

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This paper aims to review evidence for the existence of a gender difference in belief in paranormal phenomena. Women are typically found to be more likely to endorse belief in paranormal concepts than are men. The gender difference has been found in various countries, and across various measures, although use of Tobacyk and Milford's Paranormal Belief Scale is extremely common. Factors underlying the gender difference are not clear. However, gender differences in both thinking style and coping style are explored as potential origins. If there is indeed a genuine connection between coping, gender, and paranormal belief, this may have relevance to health outcomes. Additionally, research in this area may prove to be valuable to research investigating why and how people come to form both paranormal and non-paranormal beliefs.

Keywords: Cognitive style, coping style, gender, paranormal belief

From religion to witchcraft, it has been estimated that 90% of the American population holds one form of paranormal belief or another (Rice, 2003). Why do so many people hold beliefs in such phenomena, despite the lack of scientific evidence to legitimize them? As researchers have attempted to answer this perplexing question, a correlation between gender and belief in paranormal phenomena has emerged.

It is the author's belief that women's greater scores on measures of paranormal belief relative to men reflect a genuine difference in their respective degrees of belief. Research suggests that women are more likely than men to hold a variety of paranormal beliefs because they rely more heavily than men on intuition, as opposed to analytic thinking. This reliance on intuition and emotion leads women to be less critical when forming beliefs. This susceptibility to uncritical belief formation is particularly important when one considers that a reliance on intuition and emotion may also lead women to favor passive coping styles, as opposed to coping through actively attempting to change the distressing situation. In this case, the passive coping takes on

the form of a paranormal belief.

To begin exploring these concepts more fully, some issues regarding the measurement of paranormal belief are discussed. Subsequently, as the gender and paranormal belief connection has yet to thoroughly be explored, a few possibilities as to the origin of this connection are presented. Finally, a brief discussion will follow of the importance of exploring the gender difference further in future research.

How Is the Concept of Paranormal Belief Measured?

Tobacyk and Milford's (1983) Paranormal Belief Scale (PBS) is commonly used to operationally define paranormal belief. Using a 5 point scale, participants indicate to what extent they agree with statements regarding a variety of paranormal phenomena. The PBS measures seven components of paranormal belief: traditional religious belief; parapsychological phenomena (psi), such as mind reading; witchcraft; superstition; spiritualism; extraordinary life forms, such as Big Foot; and precognition, such as prediction of the future

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from dreams (Tobacyk & Milford, 1983). Occasionally researchers modify some aspects of the PBS, in which case it is referred to as the Revised Paranormal Belief Scale (RPBS; Aarnio & Lindeman, 2005; Rogers, Qualter, Phelps, & Gardner, 2006).

Men and Women Score Differently on Measures of Paranormal Belief

Compared to men, women have been found to score higher on measures of paranormal belief (Aarnio & Lindeman, 2005; Pennycook, Cheyne, Seli, Koehler, & Fugelsang, 2012; Rice, 2003; Rogers et al., 2006). Interestingly, this pattern is not restricted to only one part of the world, and has been found with participants from England (Rogers et al., 2006), Finland (Aarnio & Lindeman, 2005), and in an international sample with participants from the USA, the UK, Canada, Oceania, and Europe (Pennycook et al., 2012).

Unfortunately, it is often the case that when a significant difference is reported, the raw scores for each gender are omitted. In one exceptional case where the raw scores were reported (Aarnio & Lindeman, 2005), the mean difference between men and women on the RPBS was only 0.24 points. While this data may offer some insight as to the magnitude of the gender difference, the extent to which men and women differ in paranormal belief will remain rather uncertain until more raw data is reported. The authors note that their sample, which was Finnish, had lower levels of paranormal belief than what is traditionally found with Canadian and American samples, potentially causing a floor effect (Aarnio & Lindeman, 2005). That is to say, perhaps the level of belief in the sample was so low that the effect of gender was obscured. It is suggested that perhaps the gender difference would be more evident in areas of the world where the population generally has a higher degree of paranormal belief (Aarnio & Lindeman, 2005).

In this particular study, gender was one of the principle variables under investigation (Aarnio & Lindeman, 2005). Given this, it is surprising that there was no mention of how this variable was measured (Aarnio & Lindeman, 2005). In fact, none of the studies discussed in this paper contain any information regarding the definition of the concept of gender. Given the silence on this subject, it is safe to assume that gender was defined on a male/female dichotomy.

Possible Origins of the Ostensible Gender Difference

While women score reliably higher than men on measures of paranormal belief, this does not necessarily mean that women really are more likely than men to be believers. Some potential alternative explanations to this finding are discussed below. Namely, the possibilities are explored that women's greater religious beliefs, or that something about the self-report process itself, contributes a great deal to the gender difference. Additionally, potential explanations for a genuine difference in likelihood of belief between genders are explored.

Women Are Simply More Likely than Men to be Religious

Importantly, the greater levels of belief in paranormal phenomena shown by women relative to men cannot be solely attributed to women's greater religiosity. While women have in fact been shown to score higher than men on the traditional religious belief subscale of the PBS, the current evidence does not support the notion that this is the main source of gender differences. For instance, though Aarnio and Lindeman (2005) found that women scored significantly higher than men on traditional religious belief, women also scored higher than men on nearly all of the other subscales. These results indicate that women had higher levels of paranormal belief in various domains, not only in the religious domain.

Further evidence comes from Pennycook et al. (2012), who measured religiosity and paranormal beliefs on separate scales. Consistent with the previous study, women scored higher than men on the measure of religiosity. In this case, the measure of religiosity was the Religious Beliefs Scale. The critical finding, however, is that women also scored higher than men on the PBS. The gender difference in scores on the PBS cannot be attributed to religiosity, because the traditional religious belief subscale of the PBS was entirely removed in order to avoid redundancy with the Religious Beliefs Scale. Therefore, women's greater scores on the PBS cannot be attributed solely to their greater religiosity.

The Difference is an Artefact of the Self-Report Measures

Problematically, research investigating paranormal belief using a measure other than the PBS is exceedingly scarce. One such investigation, however, examined data from the 1998 Southern Focus Poll (Rice, 2003). The data were weighted so as to provide a representative sample of the United States. This poll included 17 questions regarding religious and paranormal belief, and women were found to be more likely than men to affirm belief in the paranormal for 10 of those questions. In only one of the 17 questions were men more likely to affirm the paranormal statement than women. That the pattern of gender differences found with the PBS has been replicated with another measure supports that the PBS is reliable, and that the gender difference is not likely due to something about the measure itself.

The Southern Focus Poll data, as well as the replication of results using the PBS, are both limited in a way, because they are self-report measures. Therefore, it cannot be ruled out that the gender difference is due to something about the self-report process. Hence, the typical concerns that arise when interpreting self-report

data apply. The most obvious concern is a gendered difference in motivated misreporting. In this day and age, where science is so highly valued (Rice, 2003), some people may be reluctant to admit to holding paranormal beliefs. More importantly, some people may be more reluctant than others. Men are typically expected to be more rational and analytic (e.g., Aarnio & Lindeman, 2005). Conversely, women are typically expected to rely more on intuition and emotion (Aarnio & Lindeman, 2005; Fetterman & Robinson, 2013; Sigmon, Stanton & Snyder, 1995). Since paranormal phenomena, by definition, are outside of the realm of science (Tobacyk & Pirttilä-Backman, 1992), it would be more of a violation of gender roles for men to admit to having these unscientific beliefs than for women to do the same. Therefore, men should be more uncomfortable disclosing these types of beliefs relative to women. These concerns are allayed, though not eradicated, by the fact that anonymity, or at least confidentiality, is typically assured to participants of survey research. People should feel more at ease to disclose potentially embarrassing information when it cannot be traced back to them. Furthermore, the high levels of belief found with self-report measures (Lindeman & Aarnio, 2007; Rice, 2003) suggest that discomfort with disclosing paranormal beliefs is not an issue. This is logical, given the massive amounts of exposure we get to paranormal concepts through the media, such as in horoscope columns, or television shows about mediums, aliens, or ghosts, for instance.

The Different Scores Reflect a Genuine Difference in Belief

Finally, it is possible that the gender differences evident in measures of paranormal belief reflect a genuine difference in degree of belief between genders. If the difference is indeed genuine, the natural progression is to wonder why it exists at all. Thinking style and coping style are two variables which have been

shown to be related to belief in the paranormal, and which also show a gender difference themselves. Thus, the gender difference that arises in measures of paranormal belief may be partially attributable to a gender difference in these underlying factors.

Analytic vs. Intuitive thinking styles.

Historically, information-processing has been hypothesized to be comprised of two independent systems. These systems are the intuitive and analytic systems, termed Type 1 and Type 2, respectively. Type 1 information-processing deals with heuristics, intuition, emotional, and non-verbal information (Bucci, 1985; Chaiken, 1980; Pennycook et al., 2012; Tversky & Kahneman, 1983). Type 2 information-processing handles verbal thought and logic, and is effortful, analytic, and systematic (Bucci, 1985; Chaiken, 1980; Pennycook et al., 2012; Tversky & Kahneman, 1983). Epstein's cognitive-experiential self-theory retains this systematic division, positing that the rational system is based on logic, and that the intuitive system is more subject to the influence of emotions (Epstein, Pacini, Denes-Raj, & Heier, 1996). While context sometimes influences which system will be used, the results indicated that people often tend to prefer using one style of thought more frequently, across a variety of contexts (Epstein et al., 1996). This enables an examination of whether individual differences in preferred thinking style have any relation to paranormal belief.

Thinking style and paranormal belief.

According to cognitive-experiential self-theory, the intuitive system is responsible for creating longer-lasting beliefs that are more difficult to change (Epstein et al., 1996). Paranormal beliefs are extremely resistant to change (Alcock, 1995; Singer & Benassi, 1981), which suggests that they are created or processed by this intuitive system (Epstein et al., 1996).

More current research provides some evidence for this suggestion of a relationship

between thinking style and belief in the paranormal. Aarnio and Lindeman (2005) conducted a study on 3141 Finnish students, whom were recruited through university mailing lists and were invited via e-mail to participate in an online survey. Pacini and Epstein's (1999) Rational-Experiential Inventory was used to measure analytic and intuitive thinking separately on 5-point scales. The RPBS was used to measure belief in the paranormal. The data indicated that an intuitive thinking style was positively associated with belief in the paranormal.

While the Rational-Experiential Inventory is a self-report measure, a similar relationship is found when thinking style is assessed more objectively. For example, Pennycook et al. (2012) recruited an international sample (n=287) via e-mail, who completed the study measures online. Responses on the cognitive reflection test (CRT) and the Base-Rate Conflict problems were used to measure thinking style. The CRT consists of problems with salient intuitive answers, which the participant must override to arrive at the correct answer, indicating a stronger tendency toward analytic thinking (Pennycook et al., 2012). In Base-Rate Conflict problems, participants are given probabilistic information (e.g., 80% of college graduates are arts students), as well as information that activates a stereotype (e.g., computer science students are introverts). These two types of information suggest to the participant different responses to the question at hand, which might be something like: What faculty did introverted student, Johnny, likely graduate from? Participants may use either their analytic system (using the probabilistic information), or their intuitive system (using the stereotypical information), to answer the questions. The RPBS was used to measure belief in the paranormal. The results indicated that an analytic thinking style was negatively correlated with paranormal belief. Thus, those who were more likely to think analytically were also less likely to believe in the paranormal.

Thinking style and gender. Interestingly, research indicates that when making decisions, women are more swayed by emotions and rely on their intuitions, whereas men are more rational and analytic. For example, Robinson and Clore (2002) found that women consider themselves to be emotional beings more so than men do. Similarly, Fetterman and Robinson (2013) found that women were more likely than men to identify their “self” as residing in the heart (“heart-locators”), as opposed to in the head (“head-locators”). Additionally, these heart-locators were more likely to solve moral dilemmas emotionally than head-locators were. It was also found that women had greater affect intensity than men. That is to say, women rated their emotions to be more intense than men did. If women are used to being aware of their emotions and to relying on emotions to solve problems, then it is logical that this would manifest in their preferred thinking style, which in turn maps onto their degree of belief in the paranormal.

Indeed, women have been found both to use an intuitive thinking style more frequently when compared to men, and to use an analytic thinking style less frequently when compared to men. For instance, results from Pennycook et al. (2012) indicated that women were more likely than men to solve problems using intuition. The authors suggested that the gender differences in paranormal belief may be partially mediated by gender differences in analytic thinking style. This suggestion is supported by data from Aarnio and Lindeman (2005). Their results indicated that women were less likely to have an analytic thinking style compared to men, and were also more likely to have an intuitive thinking style; recall that analytic and intuitive thinking styles were assessed independently (Aarnio & Lindeman, 2005). It was determined, through univariate analyses of covariance, that the gender difference in paranormal belief was indeed

mediated in part by thinking style (Aarnio & Lindeman, 2005).

Coping styles. Just as intuition or heuristics are often used to make decisions in uncertain situations (Tversky & Kahneman, 1983), so must we come to adapt to these uncertain situations when their demands exceed our available resources. The coping hypothesis proposes that paranormal beliefs serve a coping function during uncertain or uncontrollable situations (Irwin, 1993; Mathijssen, 2012; Singer & Benassi, 1981). One complication surrounding the coping hypothesis is that paranormal beliefs could potentially be viewed as both a passive form of coping, and an active form of coping (Mathijssen, 2012). On the one hand, belief in the paranormal can be seen as passive, because it involves absolving oneself of responsibility for a troubling situation by putting the responsibility on external forces, such as God (Mathijssen, 2012). Alternatively, paranormal beliefs can be seen as a form of active coping, since they may involve something action-based, such as casting a spell (Rogers et al., 2006).

Matud (2004) investigated gender differences in experience of stress as a possible source of gender divergence in coping style, by administering the Coping Styles Questionnaire (CSQ) to a large convenience sample (n=2816). The Coping Styles Questionnaire measures four different coping styles: rational coping and detached coping are said to be adaptive, while emotional coping and avoidance coping are both said to be maladaptive (Roger, Jarvis & Najarian, 1993). Women were less likely to use active coping, and more likely to use both emotion-based, and avoidant coping, when compared to men. This data is consistent with the research presented earlier, in terms of women being more likely to rely on their intuitive information-processing system.

While the coping hypothesis receives support from Callaghan and Irwin (2003), who found that paranormal beliefs are positively related to

avoidant coping, as well as to a lack of active forms of coping (as cited in Rogers et al., 2006), current research on the relationship between coping and paranormal belief is not unanimous. For instance, Rogers et al. (2006) failed to confirm these earlier findings using Lange, Irwin, and Houran's (2000) modification of the PBS. In this version of the PBS, the psi, superstition, spiritualism, and extraordinary life forms scales are grouped together to form the overarching category, labeled "New Age Philosophy" (Lange et al., 2000). The remaining scales are grouped together to form the second overarching category, labeled "Traditional Paranormal Beliefs" (Lange et al., 2000). The Ways of Coping Questionnaire (WCQ) was administered to a random sample, and no direct connection between coping style and RPBS score was found. However, a relationship was found between avoidant coping and endorsement of the New Age Philosophy subscale (Rogers et al., 2006).

Further doubt is cast on the coping theory of paranormal belief by Rice's (2003) analysis of the 1998 Southern Focus Poll. Coping theory would predict that marginalized members of society (e.g., those living in poverty) have greater levels of paranormal belief, in order to cope with their difficult situations. However, Rice's analysis (2003) was not consistent with what the coping theory would predict; relative to the non-marginalized, those who are marginalized were not found to be any more likely to believe in the paranormal. Given the mixed evidence, further research needs to be done to clarify the role of paranormal beliefs in coping.

While there is considerable evidence for a gender difference in paranormal beliefs, very few studies have directly attempted to examine why this may be. It has been suggested that a socialization process is at the root of the gender difference. Specifically, women are said to be socialized, maladaptively, to cope more passively and to express themselves emotionally (Sigmon et al., 2001). Conversely, men are said to be

socialized, adaptively, to cope instrumentally (Sigmon et al., 2001). Some evidence for this socialization process comes from the finding that parents show less confidence in their daughters than their sons (e.g., to accomplish physical tasks), which may result in daughters having less self-efficacy (Pomerantz & Ruble, 1998). Self-efficacy relates to our confidence in our capacity to complete a task, or manage a situation, competently. Indirect evidence for this lack of self-efficacy comes from the finding that women tend to rate stressful life events as less controllable than men do (Matud, 2004).

A combination of feeling unable to control life's stresses, and a habit of dealing with problems using emotion-based coping may explain why women are less likely than men to use active coping, and thus form paranormal beliefs. These paranormal beliefs may serve as a distraction, or alternatively, may enable people to cope by helping them see their stressful situation in a new light.

Conclusions and Directions for Future Research

Women have often been found to have higher levels of belief in paranormal phenomena using the PBS, and these findings have been replicated using other measures of paranormal belief as well. Furthermore, the gender difference that is evident when paranormal belief is measured with the PBS cannot be attributed solely to women's greater religiosity. The factors which contribute to, or are implicated in, paranormal belief formation are not entirely clear. However, factors which do have some support as being linked with paranormal belief, such as thinking style and coping style, also show gender differences. It is important that the gender difference in paranormal belief be investigated further; if paranormal beliefs are a way of coping with life's stressors, they are either adaptive or maladaptive. In either case, critical implications exist for the physical and psychological health of both men and women. As

evidence is mixed in terms of what underlies paranormal belief formation, pursuing the clues given by patterns of gender differences may also help to clarify the relationship between paranormal beliefs and other variables, such as coping.

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