

The Polarization of Psi Beliefs: Rational, Controlling, Masculine Skepticism versus Interconnected, Spiritual, Feminine Belief

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ABSTRACT: Anecdotal observations suggest that the extreme skeptics of paranormal phenomena tend to be males who place great value on rational thinking and control, and often feel threatened by and hostile toward those with different beliefs and values. These characteristics are consistent with the emerging evidence that males have genetic tendencies for social dominance and rational thinking. Research on the relationship between religion and belief in psi has given mixed results but suggests that belief may be more related to personal spirituality than to institutionalized religion. As a first step in understanding the polarization of psi beliefs, gender and spirituality were examined for extreme skeptics and extreme believers in psi from a Canadian representative national survey. For the extreme skeptics, 72% were male and 62% did not consider spirituality important. For the extreme believers, 64% were females and 86% considered spirituality important. These and other findings suggest that skepticism and belief in psi may be associated with genetic, sex-related personality factors. Research on paranormal beliefs may be hindered by the failure to distinguish belief in psi as a human ability versus as divine intervention.

The fact that certain individuals are intractably opposed to the possibility of psi and that others have a propensity to believe in paranormal phenomena may be the most consistent and conspicuous finding in psychical research. Psychical researchers have devoted great effort to trying to convince the skeptics to change their views. Not only has this effort failed, but the number and organization of the skeptics has been increasing during the same period that parapsychological research has been contracting (Blackmore, 1994b; Hansen, 2001). There have been many studies investigating those who believe in psi, but little discussion of those who are skeptical, particularly the extreme skeptics.

Understanding the polarization of beliefs about psi is important for several reasons. Parapsychological research assumes that psi is guided by human motivation or needs (e.g., Stanford, 1990; Weiner & Geller, 1984). This assumption requires that the attitudes and motivations pertaining to psi be understood if psi phenomena are to be understood. The slow progress in parapsychology may reflect the lack of understanding of the basic motivations relating to psi. Also the declining support for psi research suggests that a better understanding of the motivations relating to psi may be necessary for the field to remain viable.

The present paper focuses on the role of sex differences and spirituality in attitudes toward psi among extreme skeptics and extreme believers in psi. First, existing information and rationales for relationships among sex, spirituality, and attitude toward psi are summarized. Then analyses of relevant data from a representative national survey in Canada are presented.

BACKGROUND

Sex Differences in Attitude Toward Psi

Anecdotal observations suggest that extreme skeptics tend to be males. The founding board of the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP) was entirely males and the leadership has been dominated by white males (Blackmore, 1994b; Hansen, 1992).

Susan Blackmore (1994b), a parapsychological researcher who became increasingly skeptical, noted the gender aspect of extreme skepticism as she described the "worse kind of pseudoskepticism":

There are some members of the skeptics' groups who clearly believe they know the right answer prior to inquiry. They appear not to be interested in weighing alternatives, investigating strange claims, or trying out psychic experiences or altered states for themselves (heaven forbid!), but only in promoting their own particular belief structure and cohesion. . . . I have to say it—most of these people are men. Indeed, I have not met a single woman of this type. (p. 235)

National surveys in the United States, Canada, and Iceland found that disbelief in psi is associated with male gender (Haraldsson, 1981; Orenstein, 2002; Rice, 2003). Various other studies also support this conclusion (see Irwin, 1993, 2001). However, discussions of these findings have virtually always focused on belief in psi being associated with females.

The extreme skeptics also tend to (a) place great value on what they consider to be rational thinking, (b) focus their efforts on trying to persuade people to accept their values and views, and (c) display hostility in attempting to discredit those who have different views and values (Hansen, 1992). The degree of hostility of the extreme skeptics clearly suggests that their attitudes do not derive from open minded pursuit of scientific knowledge. This hostility manifests most frequently in the form of personal ridicule of those who hold differing views.

Ridicule and biased presentation were defining characteristics of CSICOP. Martin Gardner (2001), a founding board member of CSICOP, described the early split in the organization that resulted in Marcello Truzzi leaving the group.

[Truzzi] wanted our periodical to provide scholarly discussion between skeptics and fringe scientists. He disliked calling anyone a crank. Marcello has always had a friendly, at times admiring, attitude toward pseudoscientists and psychic con artists. He seldom perceives them as any sort of threat to science or to the public. . . . For the rest of us on the founding board, to expect our periodical to treat outrageous pseudoscience with respect was like expecting a liberal or socialist magazine to seek articles by right-wing extremists. (p. 360)

As Gardner's comments reveal, the founders of CSICOP view "fringe scientists" as a threat and as opponents that do not deserve basic respect or dignity. Their organization is more like a political propaganda organization than like a scientific organization. This role is also explicitly defined by CSICOP's policy of not carrying out scientific research (Hansen, 1992).

Fear that belief in the paranormal is a threat appears to be a driving motivation for the extreme skeptics (also see Hansen, 1992). As implied in Gardner's comments, this fear is not shared by some open-minded scientists.

This fear and hostility has a long history. Inglis (1992) described the reaction to spiritualism in the latter half of the 1800's. "The hostility of Christians, though, was mild compared to that of rationalists. The disciples of Comte and J. S. Mills felt that Spiritualism represented recrudescence of all they most feared and hated; and they reacted according to temperament" (p. 308).

These characteristics of extreme skeptics are consistent with emerging findings about the genetically based characteristics of males. Geary (1998) brought together a wide diversity of converging evidence across species, human cultures, and human stages of life that shows that "men are biologically destined to compete with each other for social status and for the attainment of cultural success" (p. 324). The traits commonly associated with males across 25 countries include aggressive, rational, enterprising, inventive, and resourceful (Williams & Best, 1986). Geary (1998) also summarized extensive evidence that from infancy onward, males tend to have more interest in inanimate objects and females more interest in people (pp. 217-239). Men tend to base relationships on power and dominance, whereas women tend to develop altruistic, reciprocal relationships and stable communities (Campbell, 2002; Geary, 1998).¹

¹It may be useful background to mention how I became interested in the topic of genetic sex differences. While participating in a workshop/class on the history of feminism, I was stunned as I became aware of the degree to which male dominance and competition influence human culture. This was particularly conspicuous with my experience doing environmental work. The most prominent environmental controversies were situations where men wanted to build the "biggest" project (building, industrial plant, etc.). It may have been the biggest in the neighborhood, region, state, or country, but when it was completed, someone would want to build a bigger one. Opposition to a project stimulated the motivation for dominance and commitment to the project. Circumventing rules that apply to others was a clear measure of successful dominance. With regard to spirituality, it appeared to me that the masculine approach tends to focus on converting and influencing others, forming organizational hierarchies (with men at the top), and developing criteria for determining who is more spiritually advanced. On

The extreme skeptics' apparent drive for social dominance and rational thinking may reflect male genetic tendencies that have adaptive value for successfully competing for resources, developing tools, and producing descendants.

The drive to influence and dominate the thinking of others is an effort to assert control. Research on belief in psi indicates that disbelievers have a greater internal locus of control (belief that they control the events in their lives) (Irwin, 1993). Skeptics usually explain the motivation for belief in psi as due to factors such as a need for an "illusion of control" and mastery over uncertain events (Irwin, 1993, p. 26). These explanations may be projections of the skeptics' own need for control. The possibility that different values and less rational, less controlling styles of thinking could lead to prominence and status may be fundamentally threatening to the extreme skeptics. This may explain their feelings of threat and associated hostility.

Extreme skepticism also has striking similarities with religious fundamentalism. The characteristics of religious fundamentalism include that fundamentalists believe (a) that their particular set of beliefs and values provides absolute truth and is the only source of truth, (b) that people and organizations with different beliefs and values must be vigorously fought, and (c) that people with different beliefs and values are inferior to them and deserve to be punished.² Feelings of threat, hostility, and lack of respect for those with different beliefs and values are prominent with both fundamentalists and extreme skeptics.

Methodological Issues with Religion and Spirituality

Meaningful discussion of research on religion and spirituality must start by recognizing the methodological challenges. There is no consensus on a scientific definition of religion (Hood, Spilka, Hunsberger, & Gorsuch, 1996). Research is based on "operational definitions" that measure "some tangible religious indicator" (p. 7). The most widely used measures in religious research are self-rated importance of religion and frequency of church attendance.

Religion has many different components. Hood et al (1996) proposed components of ritual, doctrine, emotion, knowledge, ethics, and community. They also listed over a dozen multidimensional approaches that have been proposed for characterizing religion. For example,

the other hand, feminine spirituality tends to focus on interconnectedness, acceptance, and nurturing.

²These characteristics of fundamentalism were adapted and generalized from Altemeyer & Hunsberger (1992). Historically, the definition of fundamentalism has varied among writers and overlapped with religious conservatism. Altemeyer and Hunsberger recognized that fundamentalists exist for most of the world's major religions and attempted to identify the common characteristics among the different religions (Hunsberger, 1996).

some religions are authoritarian and focus on obedience to church doctrines and punishment for wrong-doers. Other religions focus more on the common humanity of all persons, love, and forgiveness. People in either type of religion may say that religion is very important to them, but their experience and the effects of religion may be very different.

The distinction between religion and spirituality is increasingly recognized as an important topic for research (e.g., Marler & Hadaway, 2002). Research on what these terms mean to people has found that "spirituality was described in personal or experiential terms, whereas religiousness included personal beliefs as well as institutional beliefs and practices" (p. 294). Most people who are religious also consider themselves spiritual. However, about 20 percent of the population consider themselves spiritual but not religious. This group rejects participation in organized religion, but may have an interest in direct personal sacred experience.

The implications and generalization of research with college students are particularly dubious for research on religion. As noted by Koenig (1990) and Gartner, Larson, and Allen (1991) studies with pencil and paper psychological tests with college students have been reported as finding evidence that religious commitment is associated with psychopathology. However, research with adults using clinically defined measures indicates that religious faith is associated with better mental and physical health (Gartner, Larson, and Allen, 1991; Koenig, McCullough, & Larson, 2001; Mueller, Plevak, & Rummans, 2001).

Religion, Spirituality, and Attitude Toward Psi

Many people report that psi experiences increase their sense of spirituality and meaning in life (Kennedy & Kanthamani, 1995; McClenon, 1994; Palmer, 1979; White, 1997a). Ring (1984) indicated that psi experiences can have the same kinds of aftereffects as near-death experiences. His data indicate that near-death experiences strongly inspire a personal spirituality which is independent of institutionalized religion and that deemphasizes formal religious practices. Ring also reported that near-death experiences increase psychic experiences.

These findings suggest that psi experiences, belief in psi, and personal spirituality are mutually reinforcing. These findings lead to the prediction that spirituality and belief in psi should be associated. However, there may be important distinctions between personal spirituality and formal religious practices.

There are mixed findings and opinions from research on the relationship between religion and paranormal beliefs. National surveys in Canada and Iceland found that religious interests or beliefs were associated with belief in the paranormal (Haraldsson, 1981; Orenstein, 2002). These results are supported by other studies (see Thalbourne & Houtkooper, 2002). However, a national

survey in the U.S. found that the correlations between religious and paranormal beliefs were largely nonsignificant (Rice, 2003). Various other studies found no relationship or mixed results between religion and belief in the paranormal (reviewed in Irwin, 1993; see also Orenstein, 2002; Rice, 2003).

These inconsistencies apparently reflect the fact that certain measures of religion are related to psi beliefs and others are not. Orenstein (2002) reported that belief in the paranormal was positively related to religious faith but negatively related to religious participation in a representative national survey in Canada. For those who had high religious belief but low church attendance, 78% scored high on 6 paranormal belief questions. For those who had high religious belief and high church attendance, 24% scored high on paranormal beliefs. For those who had low religious belief and low church attendance, 11% scored high on paranormal beliefs. These results are consistent with the distinction between personal spirituality and formal religious practices noted above.

However, this type of research is complicated by the fact that beliefs associated with spirituality and psi often overlap conceptually. For example, Orenstein (2002) included belief in life after death in the religion scale and belief in communication with the dead in the paranormal scale. Communication with the dead requires belief in life after death. He also included belief in reincarnation in the paranormal scale and belief in angels in the religion scale. There is a rationale that any of these items could be in either scale. Interpreting correlations between scales must be done with great caution when the items seem arbitrary and overlapping.

Research may also be complicated by the fundamentally different models of psi held by most parapsychologists and people with traditional religious beliefs. These differences may contribute to the inconsistent finding. Parapsychologists assume that psi is a widespread human ability whereas those with traditional religious beliefs may view psi phenomena as divine interventions or miracles that are not directly caused by humans. Most questionnaire items about belief in psi do not address this distinction and are implicitly biased toward the parapsychologists' perspective. Those who believe in a personal spirituality more than a traditional religion may be more likely to give positive responses to the typical questions about belief in psi ability. For example, those believing in personal spirituality may see divinity in each person and the potential for miracles or psi with spiritual development. The responses on questionnaires about belief in psi may depend precariously on the context of the question and subtleties in wording.

Women tend to be more spiritual or religious than men. As summarized by Stark (2002), this pattern has been found consistently across cultures, across religions, and throughout history. Stark proposed that the sex differences in religiousness are best explained by biological differences. The plausibility of this hypothesis is also supported by studies of twins that found genetic components for interest in spirituality (Kirk, Eaves, & Martin, 1999) and religion

(Bouchard, McGue, Lykken, & Tellegen, 1999; Waller, Kojetin, Bouchard, Lykken, & Tellegen, 1990).

Spiritually-oriented persons and women in general may view the motivations underlying belief in psi as related to interconnectedness rather than control. Psychic and other exceptional experiences can instill a sense of connection and interconnectedness that is transcending and spiritual (White, 1997b). Tart (2002) argued that psi phenomena demonstrate connections and relationships that are transpersonal and spiritual. Blackmore (1994a) suggested that belief in psi is a manifestation of women's greater sense that the world is interconnected. As noted in the previous section, male skeptics tend to explain belief in psi in terms of a need for control and mastery over uncertain events.

METHOD

Differences from Previous Analyses

The analyses presented here evaluate the Canadian survey database utilized by Orenstein (2002), but differ from Orenstein's in that the present analyses (a) focus tightly on psi questions and eliminate nonpsi questions such as belief in astrology, and eliminate questions that possibly overlap religion and the paranormal, (b) evaluate and compare questions on the self-rated importance of spirituality and religion that were not utilized by Orenstein, (c) do not use any of the questions that Orenstein utilized in his religion scale, (d) compare a question that frames psi as a miracle (and was not utilized by Orenstein) with more typical questions that imply psi is a human ability, (e) are more granular in that the questions are examined individually rather than being combined into scales, and (f) examine extreme skeptics and extreme believers.

Source of Data

Project Canada is a national Canadian survey that obtained data in 1995 which included items on belief in psi and religious and spiritual faith. The survey was directed by Reginald Bibby of the University of Lethbridge. The data and description of the methodology are available to the public through the website of the American Religion Archive at the Department of Sociology of the Pennsylvania State University (data file PC1995, which is found at <http://www.thearda.com/archive/description/pc1995.html>).

The 1995 survey obtained data from 1,765 people. Questionnaires were sent to households randomly selected from phone directories in 228 communities. The return rate was 64% for the mailed questionnaire. The effort to obtain responses included postcard reminders and second mailings. The entire survey was 20 pages and focused on social issues, intergroup relations, and religion.

The responses were weighted by community size, gender, and age to be "highly representative of the Canadian population."³ The effective sample size for the weighted data is 1,238 (49.5% female) and the margin of error for a 95% confidence interval is 4 percentage points.

The present analyses focus on 3 psi questions and 3 religion or spirituality questions that allow the dimensions of psi and spirituality discussed above to be examined.

The 3 questions about psi are:

Do you believe in the following?

1. ESP
2. That some people have psychic powers
3. That miraculous healing sometimes occurs

The response options were: 1. Yes, definitely. 2. Yes, I think so. 3. No, I don't think so. 4. No, definitely not. 8. Undecided.

The 3 questions on religion and spirituality are:

How important is the following to you?

1. Spirituality
2. Religion

The response options were: 1. Very important. 2. Somewhat important. 3. Not very important. 4. Not important at all.

3. How often do you attend religious services?

The 9 response options ranged from Several times a week (coded as 1) to Never (coded as 9).

Gender was coded as 1 for females and 2 for males.

Analysis Plan

To examine the polarization of psi beliefs, those who indicated they definitely believed for all 3 psi questions were compared with those who indicated they definitely did not believe for all 3 questions. These two groups should reasonably represent the extremes of belief and skepticism. The extreme believers would be expected to be largely females and highly spiritual, whereas the extreme skeptics would be expected to be largely males and have little interest in spirituality. For those who believe in psi, spirituality would be expected to be more important than religion.

In addition, some of the methodological distinctions discussed above can be examined with

³The raw data that are downloaded from the internet are unweighted, with weights to make the data more representative given in the variable "WT." The analyses reported here were done with the SAS system for data analysis using the FREQ procedure with the WEIGHT option for applying the weights. The weighted counts are generally not exact integers, but have been rounded to integers when presented here. The percents presented here are based on the values before being rounded and may differ slightly from the percents calculated from the rounded values.

these data. The question on miraculous healing would be expected to be more strongly associated with the religion and spirituality questions than the other 2 psi questions. The other 2 psi questions would be expected to be associated more strongly with the spirituality question than with the religion or religious attendance questions.

RESULTS

The responses on the psi and spirituality questions are summarized in Tables 1 and 2. For the analyses reported here, the few cases with undecided responses on the psi questions were set to “Missing” because there were too few to provide meaningful estimates and prevented proper application of categorical statistical methods.

As shown in Table 1, 57% of the respondents answered "Yes, definitely" or "Yes, I think so" for the question on belief in ESP. Likewise 57% gave "Yes" responses for the question on belief in psychic powers. A substantially greater number, 74%, indicated "Yes" for belief that miraculous healing can occur.

Table 1
DISTRIBUTION OF RESPONSES TO PSI QUESTIONS
DO YOU BELIEVE IN THE FOLLOWING?

| | ESP | Psychic Powers | Miraculous Healing |
|-----------------------|-----------|----------------|--------------------|
| | % (n) | % (n) | % (n) |
| 1. Yes, definitely | 20% (230) | 19% (219) | 30% (356) |
| 2. Yes, think so | 37% (427) | 38% (446) | 44% (519) |
| 3. No, don't think so | 27% (310) | 26% (310) | 17% (199) |
| 4. No, Definitely not | 17% (194) | 17% (200) | 9% (102) |
| Undecided | (4) | (2) | (3) |
| Missing/Unusable* | (73) | (61) | (59) |

* Undecided and Missing/Unusable were excluded from the percentages.

As shown in Table 2, 69% of the respondents considered spirituality very or somewhat important, and 57% considered religion very or somewhat important.

In Table 3 we see that the variables showed the expected associations. The rank order correlations indicate that women had greater belief in psi and importance of religion and spirituality than men. Belief in miraculous healing was more strongly correlated with importance of spirituality ($r = .38$) and religion ($r = .39$) than were the other 2 psi items. The importance of spirituality was weakly, but positively correlated with belief in ESP ($r = .06, p < .05$) and that some people have psychic powers ($r = .11, p < .0001$). The importance of religion was not significantly related to belief in either ESP or psychic powers. Church attendance was negatively related to belief in ESP ($r = -.16, p < .0001$) and was not related to belief in psychic powers.

These different correlations occurred in spite of the strong correlations among the spirituality and religion variables and between the ESP and psychic powers' variables.

Table 2
DISTRIBUTION OF RESPONSES TO SPIRITUALITY QUESTIONS
HOW IMPORTANT IS THE FOLLOWING TO YOU?

| | Spirituality | | Religion | |
|-------------------------|--------------|-------|----------|-------|
| | % | (n) | % | (n) |
| 1. Very important | 36% | (432) | 26% | (313) |
| 2. Somewhat important | 33% | (393) | 31% | (383) |
| 3. Not very important | 20% | (239) | 25% | (308) |
| 4. Not important at all | 11% | (138) | 18% | (213) |
| Missing/Unusable* | | (35) | | (21) |

* Missing/Unusable were excluded from the percentages.

Table 3
CORRELATIONS AMONG VARIABLES

| | Gender | ESP | Psychic | Healing | Spirituality | Religion |
|--------------|--------|---------|---------|---------|--------------|----------|
| ESP | .16*** | | | | | |
| Psychic | .21*** | .66*** | | | | |
| Healing | .15*** | .28*** | .35*** | | | |
| Spirituality | .16*** | .06* | .11*** | .38*** | | |
| Religion | .09** | -.05 | .04 | .39*** | .68*** | |
| Attend | .03 | -.16*** | -.05 | .35*** | .49*** | .70*** |

Notes. Spearman rank order correlations were obtained from the SAS procedure FREQ which uses methods specifically for measuring association in contingency tables with ordinal data. Positive correlations with gender indicate greater association for females.

* $p < .05$, two-tailed

** $p < .01$, two-tailed

*** $p < .0001$, two-tailed

In looking at the extremes of the polarization of psi beliefs, 8.0% of the respondents answered all 3 psi questions as definitely believing and 4.6% answered all 3 psi questions as definitely not believing. As shown in Table 4, 72% of the extreme skeptics were males and 64% of the extreme believers were females. For the extreme believers, 86% indicated that spirituality was very or somewhat important (see Table 5). For the extreme skeptics, 62% indicated that spirituality was not important.

Table 4
GENDER OF EXTREME SKEPTICS AND EXTREME BELIEVERS

| | Male | | Female | |
|----------|------|------|--------|------|
| | % | (n) | % | (n) |
| Skeptic | 72% | (41) | 28% | (16) |
| Believer | 36% | (36) | 64% | (63) |

Note. Chi-square for the differences is 18.7, 1df, $p < .0001$

Table 5

IMPORTANCE OF SPIRITUALITY FOR EXTREME SKEPTICS AND EXTREME BELIEVERS

| | Very Important % (n) | Somewhat Important % (n) | Not Very Important % (n) | Not at All Important % (n) |
|----------|----------------------------|--------------------------------|--------------------------------|----------------------------------|
| Skeptic | 10% (6) | 28% (16) | 38% (22) | 23% (13) |
| Believer | 55% (54) | 31% (30) | 7% (7) | 7% (7) |

Note. Chi-square for the differences is 44.6, 3*df*, $p < .0001$

For the extreme believers, spirituality was related to belief in ESP and psychic powers, as well as to belief in healing miracles. For those who marked "definitely" for both belief in ESP and that some people have psychic powers, 81% (110 of 135) rated spirituality as very or somewhat important. For those who definitely believed in miraculous healing, 87% (305 of 351) rated spirituality as very or somewhat important. However, the type of psi question may have different relationships to spirituality for the extreme skeptics. For those who definitely did not believe in either ESP or psychic powers, 58% (68 of 117) considered spirituality very or somewhat important. For those who definitely did not believe in miraculous healing, 40% (40 of 99) considered spirituality very or somewhat important.

Spirituality was rated as more important than religion by 33% of the extreme believers whereas religion was rated as more important by only 5% (the remaining respondents gave the same importance rating to spirituality and religion). For the extreme skeptics, the corresponding figures were 21% and 5%.

When the criteria for believers and skeptics were relaxed to include those who rated all 3 psi questions as either believing or not believing without necessarily making the most extreme response, 36% of the respondents were categorized as believers and 13% as skeptics. The skeptics were 77% (126 of 163) male and the believers were 58% (259 of 446) female. With these groups, 74% (326 of 443) of the believers rated spirituality as very or somewhat important and 57% (93 of 162) of the skeptics rated it as not very or not at all important.

DISCUSSION

The results from a national Canadian survey support the hypothesis that the extreme skeptics of psi tend to be males and to consider spirituality unimportant. Those with strong beliefs in psi tend to be females and to consider spirituality important. Of course, the majority of the population fall between these extremes, but these trends are apparent in the full sample.

These findings are consistent with the emerging evidence for genetic psychological differences between males and females as described in the introduction. It is likely that many extreme skeptics have strong innate drives for rational thinking, control, and social dominance. The worldviews associated with psi phenomena and spirituality may not conform to their mode of thinking and need for control.

The possibility that genetics has a role in psi beliefs is also consistent with studies of twins that found genetic components for the personality characteristics of absorption (Tellegen et al., 1988) and hypnotic susceptibility (Morgan, 1973). These traits are associated with psi experiences (Glickson, 1990; Kennedy, Kanthamani, & Palmer, 1994; Nadon & Kihlstrom, 1987; Richards, 1990). These traits are also linked to altered states of consciousness and are probably very unappealing to those with a strong need for control and rational thinking.

In considering the implications of these findings, it is important to remember that the differences occur within the context of genetic variation. Diverse variation in genetic traits is an underlying principle of evolution and must occur for natural selection to occur. Many biological mechanisms promote variation (notably sexual reproduction). The traits that differ between males and females can be assumed to be similar to the differences in height. Men have a genetic tendency to be taller than women, but, because of the variation, many women are taller than many men. The differences manifest as statistical trends. In addition, human personality and behavior are also influenced by environmental factors.

These data also are consistent with the hypothesis that many religious people consider psi effects as divine miracles rather than as a human ability. Belief in miraculous healing was more common than belief in ESP or that some people have psychic powers. Belief in miraculous healing was also more strongly correlated with the importance of religion and spirituality. Failure to consider the distinction between divine interventions and human abilities may lead to inconsistent and misleading research results on the relationships among religion and paranormal beliefs.

As expected, belief in ESP and psychic powers was more highly associated with importance of spirituality than importance of religion. In fact, belief in ESP was negatively correlated with attendance at religious services, but was positively correlated with importance of spirituality. In addition, about a third of the extreme believers tended to rate spirituality as more important than religion. These patterns are consistent with the reported transformative effects of near-death and psychic experiences (Ring, 1984, White, 1997b) and support the hypothesis that belief in psi, psi experiences, and spirituality are mutually reinforcing. However, although the effects were strong for the extreme groups and were statistically significant for the overall sample, the correlations were small for the overall sample, which suggests substantial differences among people.

The hypothesis that belief in psi is motivated by a sense of interconnectedness and spirituality is more consistent with existing data than the skeptical, masculine hypothesis that

belief is motivated by a need for control. For the great majority of spontaneous psi experiences the net result is a sense of connection and more spiritual worldview, with no practical, tangible benefit and no sense of control over psi. Spontaneous psi experiences often seem to guide people rather than people guiding psi (Kennedy, 2000). For experiments, the lack of control over psi is the primary characteristic that challenges research and may reflect a fundamental property of psi (Kennedy, 2003). There is little support for the idea that interest in psi provides a sense of control.

One of the more noteworthy implications of these findings is that people (usually males) with the strongest innate drive for dominance and rationality are most likely to rise to positions of status and authority -- and to be skeptical of psi. The innate negative attitude toward psi by those in positions of authority may have a major role in the lack of acceptance and support for parapsychology. The skeptical attitudes of high status scientists have been documented (McClenon, 1982). More general investigation of status, gender, and skepticism as a personality trait would be valuable.

These findings suggest not only that different research strategies may be valuable, but also that neither side can be expected to prevail. The emerging evidence indicates that the polarization of attitudes toward psi may result from deep-seated personality factors with substantial genetic components. For extreme believers, psi is associated with spirituality. Like many matters involving spirituality, psi effects may be largely outside the domain of science. This is particularly true for paranormal effects that are believed to be manifestations of divine intervention. Rather than expecting that one side can prevail through science or force of argument, it may be more realistic to view the polarization of psi beliefs like other fundamental personality and sex differences. A reasonably enlightened society comes to recognize, tolerate, accept, and often see value in these basic differences among people.

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