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SOCIAL INFLUENCES ON PARANORMAL BELIEF: POPULAR VERSUS SCIENTIFIC SUPPORT

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ABSTRACT

Paranormal claims enjoy relatively widespread popular support despite by definition being rejected by the scientific community. We propose that belief in paranormal claims is influenced by how popular those claims are as well as by dominant scientific views on the claims. We additionally propose that individuals will be most likely to be positively influenced by the views of science when claims are unpopular. An experimental study varied instructions to participants in a 2x2 design which informed participants that a particular paranormal belief/claim (ESP) was very popular or not and was rejected by science or not. Participants then watched a brief video that appeared to present evidence of ESP. As predicted, participants became more likely to believe in ESP when claims were more popular. Contrary to predictions, participants appeared to react against the views of science when evaluating claims, particularly when they believed those claims were unpopular. This finding may reflect decreasing trust in the institution of science.

INTRODUCTION

Belief in paranormal claims has increased markedly in the United States in recent decades. For example, a 2001 Gallup Poll found significant (greater than 5%) increases in belief for seven paranormal claims since 1990, and a significant decrease in only one polled belief (Moore 2005). [1] Further, the overall percent of Americans believing in paranormal claims is high. According to the 2001 Gallup Poll, for example, half or more of Americans believe in psychic or spiritual healing (54% believed, 26% did not believe) and in extrasensory perception (ESP) (50% believed, 27% did not believe). Belief in paranormal claims in student populations is similarly high (Duncan, Donnelly, Nicholson, and Hees 1992; Messer and Griggs 1989). These findings are troubling to educators who value and teach an approach of appropriating belief according to evidence. In that belief in paranormal claims by definition requires one to disregard existing bodies of knowledge, paranormal beliefs may reflect an inability or unwillingness to link conclusions to evidence. [2] Consistent with this, belief in the paranormal tends to be associated with lower cognitive ability and academic performance (Blackmore and Troscianko 1985; Musch and Ehrenberg 2002; Tobacyk 1984).

Belief in paranormal claims has increased alongside decreasing trust in social institutions. Evidence of malfeasance in organizations such as Enron, WorldCom, Halliburton, and Tyco led to a significant loss of trust in the integrity of the U.S. corporate sector, and particularly of corporate leadership (Alsop 2004; Gosschalk and Hyde 2005; Leeds 2003). This declining trust has also extended to the institution of science (Bloom and Rosovsky 2001; Hanley and Shogren 2005). Surveys indicate that trust in science in general seems to be declining (Nowotny 2005).

It may be a coincidence that increasing belief in paranormal claims appears to have coincided with decreasing trust in science. The correspondence, however, raises interesting questions. Basic social psychology indicates that individuals will become more likely to believe claims that are more popular. We also expect people to generally adhere to the dominant views of science. What happens when the popularity of beliefs conflicts with the views of science is the focus of the research reported here.

We conducted an experimental study in which participants watched a videotape manipulated to appear to show a person demonstrate ESP. Study instructions varied to participants in a 2x2 experimental design. Half of participants were told that public belief in ESP is high, half that it is low. Additionally, instructions told half of participants that science rejects the possibility of ESP, while half were told that scientists recognize ESP as a possibility. Results were in the direction of popularity increasing belief and scientific support *decreasing* belief. We also found a significant interaction indicating that individuals were especially likely to react against the views of science when claims were unpopular.

THEORETICAL DEVELOPMENT

Features of individuals play a significant role in the likelihoods that they will believe in paranormal claims. For example, individuals lower in critical thinking ability are more likely to accept paranormal claims as true than are individuals higher in critical thinking ability (Wierzbicki 1985). Our focus, however, is on social factors that influence belief in the

paranormal. At least since Asch's (1951) classic research on conformity, social psychological research has demonstrated that individuals will change their beliefs in a direction consistent with group standards. As a result, we should expect that beliefs in paranormal claims will be affected by perceptions of social acceptance of those claims. [3]

Markovsky and Thye (2001) demonstrated in an experimental study the malleability of paranormal beliefs to social pressures. In their study, participants became significantly more likely to believe they had witnessed a paranormal phenomenon when a confederate who witnessed the same phenomenon claimed to believe the phenomenon to be true. Furthermore, confederates who were not present were just as highly influential as sources who were present. In Asch's research, larger groups were more influential in producing conformity than were smaller groups. And, subsequent research (Campbell and Fairey 1989) found that increasing group size had larger effects when normative influence processes, as opposed to information influence, were operating. From this body of research, we should expect perceptions of beliefs in society in general to have significant effects on an individual's likelihood to believe in a paranormal claim. We thus make the following prediction:

Hypothesis 1: Participants will be more likely to accept a paranormal explanation for an unusual event when they believe the paranormal explanation is more widely popular compared to when they believe it is less popular.

We also anticipate that individuals will be influenced by the views of science in their acceptance of paranormal claims. Although trust in science is declining, scientists remain more trusted than politicians and those in other public institutions (Nowotny 2005). A 2009 poll by the Pew Research Center (2009) found that an overwhelming majority of Americans (84%) believed that science has had a positive effect on society and that science has made life easier for most people. Further, those polled held scientists in high regard. In rating professions by their contributions to society's well-being, scientists were rated lower than only teachers and members of the military and ahead of medical doctors, journalists, and lawyers among other professions. We predict the following:

Hypothesis 2: Participants will be more likely to accept a paranormal explanation for an unusual event when they believe that the scientific community is accepting of the paranormal explanation than when they believe that the scientific community rejects it.

Although trust in science remains generally high, Americans are willing to depart from dominant views of science on particular issues such as evolution and global warming (Lang 2005). The 2009 Pew poll which found that trust in science remains high also found increasing skepticism about science. When asked America's greatest achievement in the prior 50 years, 47% of Americans in 1999 listed a scientific achievement. In 2009, only 27% of American's listed a scientific achievement in response to the same question. The growing acceptance of paranormal claims combined with a decreased trust in science and willingness to depart from science on particular issues leads us to predict that individuals will selectively adhere to dominant views of science. We predict that individuals will attend to the views of science when claims are unpopular but will tend to disregard the views of science for popular claims:

Hypothesis 3: Popularity and scientific acceptance will interact such that participants will become less likely to believe paranormal claims rejected by the scientific community when belief in those claims is unpopular but not when belief is popular.

Our goal in carrying out our research was not to test for levels of paranormal belief in the population at-large. The prevalence of belief in the paranormal among Americans is well-documented. Instead, our objective was to test the above predictions on how dominant belief systems affect individual beliefs. To test our predictions, we carried out an experimental study with college student volunteers as participants. Details of the study are described below.

METHODS

Participants were undergraduate students at a large public university. Upon arriving for the study, participants first completed an information form containing standard demographic items. They also answered a question indicating the extent to which they believed that ESP is a real phenomenon. Instructions said that the investigators were interested in studying how individuals respond to evidence of ESP. The study contained four conditions in a 2x2 design that varied popularity of ESP and the perspective of science on ESP. The four conditions of the study were as follows:

Condition 1: Participants read that 25% of the American public believes in ESP and that the scientific community rejects the possibility of ESP.

Condition 2: Participants read that over 90% of the American public believes in ESP and that the scientific community rejects the possibility of ESP.

Condition 3: Participants read that 25% of the American public believes in ESP and that the scientific community is becoming more open to the possibility of ESP.

Conditions 4: Participants read that 90% of the American public believes in ESP and that the scientific community becoming more open to the possibility of ESP.

Thus, participants were told that either 25% or 90% of the public believes in ESP (in fact, about 50% of Americans believe in ESP) and that the scientific community either rejects or accepts the possibility of ESP (in fact, the scientific community overwhelmingly rejects the possibility of ESP). The text of instructions participants received was as follows:

"ESP is particularly relevant to study in today's society because there has been a dramatic increase in the proportion of the United States' population that believes in ESP. A recent Gallup Poll found that [about 25%] [more than 90%] of Americans believe that some persons possess ESP, a figure up significantly from just 10 years ago. [While more and more Americans are believing in ESP, the overwhelming majority of the scientific community still rejects the possibility of ESP, arguing that it violates certain irrefutable scientific principles] [Along with the American public increasingly believing in ESP, the scientific community is becoming more open to the idea as well—many scientists now believe that ESP is at least possible]."

After reading instructions particular to their conditions, participants watched a short video in which an individual completes a card-guessing task. The individual in the video performs much better than would be predicted by chance (unknown to participants, the individual in the video was informed of answers by someone off-camera). After watching the video, participants completed a number of questionnaire items, including whether the participants believed in ESP and whether they thought the individual in the video displayed ESP in her guesses.
We predict that as participants believe that a greater proportion of the American public believes in ESP, they will becomes more likely to believe (i.e., greater belief in Condition 2 than in Condition 1 and in Condition 4 than in Condition 3). We further predict that as participants believe that the scientific community is more open to the possibility of ESP, they will become more likely to believe (i.e., greater belief in Condition 3 than in Condition 1 and in Condition 4 than in Condition 2). We also predict an interaction between public and scientists' beliefs such that the effect of the views of science is greater when beliefs are less popular in the public at large.

RESULTS

Forty participants completed each experimental condition for a total of 160 participants. We rejected data from an additional five participants who did not believe the video was authentic or did not believe the study instructions were truthful.

We predicted that participants would become more accepting of paranormal explanations when they believed the explanation had high public support or support from the scientific community. We also predicted that effects of public and scientific support would interact such that effects of science would be greater for less popular claims. We tested our hypotheses by comparing results on a dependent variable that asked participants the extent to which they believed in ESP after watching the video presentation. We measured the item on a 7-point scale with the top end of the scale reflecting high levels of belief in ESP.

Following are mean scores on the belief in ESP scale across conditions:

Condition 1 (25% of public believes; science rejects): 4.58 (SD = 1.92)

Condition 2 (90% of public believes; science rejects): 4.50 (SD = 1.60)

Condition 3 (25% of public believes; science accepts): 3.58 (SD = 1.84)

Condition 4 (90% of public believes; science accepts): 4.80 (SD = 1.70)

Mean differences show a pattern that is difficult to interpret. The most noteworthy finding appears to be that individuals are especially likely to reject claims that are unpopular but accepted by science. We conducted an ANOVA to test for main effects of scientific and public support as well as the interaction between the two, while controlling for participant gender, age, and race. ANOVA results showed a significant main effect for public support ($F = 7.077$, $p = .009$). When participants believed that claims were more popular, they became more likely to accept them. The main effect for the views of science was not significant ($F = 1.162$, $p = .283$).

Participants were not significantly affected by the views of science. The interaction between public and scientific views was significant ($F = 6.786 = .010$). The interaction, however, operated differently than we predicted. We expected the views of science to carry less weight for more popular claims. This was the case. However, the effect of science for unpopular claims was in the opposite direction of what we expected: When claims were unpopular, individuals reacted against the views of science in their beliefs.

DISCUSSION

We found relatively strong evidence that individuals are more likely to accept paranormal claims as true when they believe such claims have popular support. This finding contributes to and extends research that has found significant effects of social influences on belief in the paranormal. We found no effects indicating that science rejecting a claim led individuals to be less likely to believe the claim. In fact, when participants believed that science rejected a claim, they moved in the direction of being *more* likely to accept the claim as true. This finding ran counter to our expectations but is consistent with findings that trust in science is decreasing.

We predicted that effects of science and popularity would interact such that individuals would be most likely to look to the views of science when evaluating unpopular claims. The effects of science were largest when beliefs were unpopular, but the effects were in the opposite direction of what we predicted. When participants believed that ESP had widespread support, participants indicated generally high belief irrespective of information on the views of science. When participants believed that ESP had less popular support, they were more likely to believe when they were told science rejected ESP than when they were told that science accepted the possibility of ESP. Comparing means across conditions, participants expressed similar levels of belief in three of the four conditions—both conditions in which ESP had high popular support and the condition in which ESP did not have widespread popular support and science rejected the possibility of ESP. In the fourth condition, in which participants were instructed that belief in ESP is not popular but science accepts ESP as a possibility, mean belief scores dropped significantly.

A possible explanation for the set of means across conditions is that participants first may have looked to the popularity of claims when determining belief. If claims were popular, then participants were generally likely to believe. When claims were unpopular, however, participants might have considered the views of science and moved away from dominant scientific thought. Another explanation is that the condition with anomalous findings is the only condition that presented a set of information likely to be inconsistent with any of the participants' prior experiences. Claims not being widely accepted and being rejected by science go hand in hand, as do claims being widely believed and accepted by science. Beliefs being popular but rejected by science (e.g., spiritual healing) also often complement each other. However, it is difficult to think of claims rejected by three quarters of the public at large but accepted by scientists as true. Perhaps other conditions triggered cognitive processes that led to expressions of belief in some participants, whereas the condition with inconsistent information did not. These potential explanations are purely speculative, and this issue would benefit from further investigation.

Overall, our research demonstrated that individuals responded positively to perceptions of the popularity of paranormal claims when making decisions about belief in those claims. Results also suggest that participants reacted *against* the views of science in making decisions about paranormal claims. These findings may be due to individuals seeing paranormal belief as a matter of faith rather than evidence and therefore reacting against science. Alternatively, perhaps endorsement from peers provides a stronger source of legitimacy for paranormal beliefs than authorization from a higher authority. Or, the findings may result from a decreasing trust in the institution of science.

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ENDNOTES

[1] Paranormal beliefs showing significant increases from 1990 to 2001 included haunted houses, ghosts, witches, communication with the dead, psychic or spiritual healing, that extraterrestrials have visited earth, and clairvoyance. Demonic possession showed a significant decrease in belief.

[2] Following Markovsky and Thye (2001), we adopt a broad definition of "paranormal." For our purposes, claims are paranormal if they violate widely accepted scientific principles (such as perpetual motion machines), if they are very unlikely given existing knowledge (such as Bigfoot), or if they are outside the realm of natural explanations (such as astrology).

[3] Beliefs may be conscious or unconscious, controllable or not. By "belief," we mean here conscious representations of beliefs.

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