

PARANORMAL BELIEF, RELIGIOSITY AND COGNITIVE COMPLEXITY

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ABSTRACT

Many studies have explored the relationship between paranormal belief and religiosity. Some studies have shown that paranormal belief correlates with religiosity, yet many studies have not supported this association. The first goal of the present investigation therefore was to replicate previous findings. It is also of interest to explore the relationship between paranormal belief and religiosity in Chinese society, since it has not been studied so far. Another interesting correlate with paranormal belief is general cognitive ability. General cognitive ability was found negatively correlated with belief in the paranormal. However, general cognitive ability correlates with education, which might appear to be related to cognitive complexity. The relationship between paranormal belief, religiosity and cognitive complexity was explored in this study. Therefore, this study has two purposes. First, the Chinese version of the Revised Paranormal Belief Scale (RPBS) was constructed. Second, the relationship among paranormal belief, religiosity and cognitive complexity was examined. Cognitive complexity was measured by the repertory grid including an 8X8 grid. Eight personal roles, such as self, grandparent, father, mother, sibling, classmate, friend, and boyfriend or girlfriend, and four constructs, including religious belief, religious activities, virtue vs. evil, and afterlife were preset. Each participant provided the other four constructs during the test. The task was to decide the importance of each construct with regard to the relationship between the individual and each personal role by using a 9-point Likert scale. The task sequence was generated randomly according to the computer program. The score generated by the OMNIGRID called the variability of intensity was a measurement of cognitive complexity of the participant. It was obtained as follows: (a) for each pair of constructs, the correlation (COR) and its variance (VAR = COR² X 100%) were calculated, and (b) the variability of intensity was the standard deviation of all the VAR values obtained from each pair of constructs. Forty university students in Taiwan completed the RPBS, the Personal Religiosity Scale and the repertory grid individually. Results indicated that the Chinese version of the RPBS had a satisfactory reliability (Cronbach alpha = .88). The construct validity was confirmed from the correlation matrix between the factors of the RPBS and PRS as well. Paranormal belief and religiosity were two different constructs despite some possible overlap, such as scales of traditional religious belief, spiritualism, believing that nature/environment can affect individuals' well-being and fortune, and afterlife (all these factors had five significant correlations with the other scale). There was a significant negative correlation between religious faithfulness and cognitive complexity. The limitations of this study include small sample size (N = 40) and lack of back-translation procedure of the Chinese version of the RPBS.

INTRODUCTION

Paranormal phenomena are "those which, if genuine, would violate basic limiting principles of science" (Tobacyk, 1988, p. 3), and paranormal belief is belief in paranormal phenomena. The research on paranormal belief can be traced back to the interest on investigating the concept of superstition. For example, Scheibe and Sarbin (1965) tried to conceptualize superstition theoretically, and the variables correlated with superstition/supernatural belief such as conservatism (Boshier, 1973), gender (Bhushan & Bhushan, 1986; Blum, 1976), surgical stress (Shrimali & Broota, 1987), and locus of control (Randall & Desrosiers, 1980; Scheidt, 1973) had also been studied. In addition, the relationship between paranormal belief and the Barnum effect has been investigated (Tobacyk, Milford, Springer & Tobacyk, 1988).

One of the correlates with paranormal belief that attracts much attention is religiosity or religious belief, since religion is an important part of human culture and the presence of God/gods have yet to be proved scientifically. A number of studies have shown that paranormal belief correlated with religiosity (e.g.,

Buhrmann & Zaugg, 1983; Orenstein, 2002; Thalbourne & Hensley, 2001). However, other studies did not support this association (e.g., Ellis, 1988; Rice, 2003). The first goal of the present investigation therefore was to replicate previous findings. Furthermore, the relationship between paranormal belief and religiosity has not been explored in Chinese society as well.

In the recent decade, although there have been studies in finding the personality or psychopathology variables correlating with paranormal belief (e.g., Dag, 1999; Rattet & Bursik, 2001; Wiseman, Greening & Smith, 2003; Wolfradt, 1997), many studies showed an inconsistent result. For example, empirical studies have shown extraversion to have a high association between paranormal belief and alleged paranormal experience (Honorton, Ferrari & Bem, 1992; Schmeidler, 1982). The sheep-goat effect was found in individuals with higher paranormal belief scores (sheep) to be more extraverted than disbelievers (goats) (Thalbourne, 1981). However, some studies indicated extraversion was not associated with paranormal belief (Rattet & Bursik, 2001; Windholz & Diamant, 1974). Consequently, extraversion seems to be not as obvious a predictor of belief in paranormal phenomena. One possible explanation for the failed replications is the limited reliability of this psychological trait. Therefore, one of our attempts in this study is to find a stable psychological indicator of paranormal belief.

Intelligent or highly educated participants have been shown to have less paranormal belief (e.g., Blum & Blum, 1974; Jahoda, 1970; Killen, Wildman & Wildman, 1974), and this relation did not seem to be accounted for by context effects (Smith, Foster & Stovin, 1998). Moreover, Irwin (1993) contended that no correlation between paranormal belief and intelligence was found from several studies. Musch and Ehrenberg (2002) suggested that general cognitive ability might be a critical underlying variable correlating with paranormal belief and, then, they found general cognitive ability negatively correlated with belief in the paranormal. Nevertheless, intelligence or general cognitive ability correlates with education (Kaufman, 1990), which in turn appears to be related to cognitive complexity. According to the Personal Construct Theory proposed by George Kelly and later elaborated further by his student James Bieri, a cognitive complex person has a personal construct system in which the constructs are clearly differentiated, whereas a cognitive simple person has a personal construct system containing constructs that are poorly differentiated (Potkay & Allen, 1986). The measurement of cognitive complexity indicates the degree of differentiation of the personal constructs construed by the participant, that is, the degree of non-overlapping of these constructs. People who had a higher cognitive complexity related positively to their degree of confidence (Adams-Webber, 2003). We suspected that cognitive complexity might be an important predictor of paranormal belief. The effect of cognitive complexity on paranormal belief has yet to be determined.

Therefore, this study has two purposes. First, the Chinese version of the Revised Paranormal Belief Scale was constructed. Second, the relationship among paranormal belief, religiosity and cognitive complexity was examined. It was hypothesized that cognitive complexity negatively correlated with both paranormal belief and religiosity respectively.

METHODS

Participants

Forty university students (15 males and 25 females) of the Department of Psychology at the Chung Yuan Christian University, Taiwan, were recruited to participate in this study. Their ages ranged from 18.42 to 30.75 years, with a mean of 21.02 years. Religious background of the students comprised 5% Catholic/Christian, 15% in Buddhist, 15% in Taoist (Taiwanese folk religion), 2.5% with other religions (not specified), and the rest without religious beliefs. This sample does not represent the proportions of the religious beliefs in the Taiwan population. Informed consent was obtained from each participant.

Instruments and Procedure

Each participant was administered the following tests in sequence: the repertory grid, the Revised Paranormal Belief Scale and the Personal Religiosity Scale. The instruments are described as follows.

1. The repertory grid: The OMNIGRID version of the repertory grid was used (Sewell, Adams-Webber, Mitterer & Cromwell, 1992; Sewell, Mitterer, Adams-Webber & Cromwell, 1991) and an 8X8 grid was adopted. Eight personal roles, including self, grandparent, father, mother, sibling, classmate, friend, and boyfriend or girlfriend, and four constructs, including religious belief, religious activities, virtue vs. evil, and afterlife were preset. Each participant provided the other four constructs during the test. The task was to decide the importance of each construct with regard to the relationship between the individual and each personal role by using a 9-point Likert scale. The task sequence was generated randomly according to the computer program. Each participant had to make 64 responses in total. The score generated by the OMNIGRID called the variability of intensity was a measurement of cognitive complexity of the participant. It was obtained as follows: (a) for each pair of constructs, the correlation (COR) and its variance (VAR = COR² X 100%) were calculated, and (b) the variability of intensity was the standard deviation of all the VAR values obtained from each pair of constructs.
2. The Revised Paranormal Belief Scale (RPBS): Tobacyk and Milford (1983) constructed the Paranormal Scale, which was later revised and known as the RPBS (Tobacyk, 1988). It is the most widely used instrument for measuring paranormal belief (Goulding & Parker, 2001). Although Tobacyk (1988) proposed a seven-factor construct for the RPBS, other researchers have suggested a two-factor construct (e.g., Houran, Irwin & Lange, 2001; Houran & Lange, 2001; Lange, Irwin & Houran, 2000) or a four-factor solution (e.g., Hartman, 1999). In this study, the RPBS was translated to Chinese with slight changes on the wording of items 4 and 18 but preserving the original meaning due to cultural reasons.
3. Personal Religiosity Scale (PRS): It is obvious that religiosity has cultural differences (e.g., Haraldsson & Houtkooper, 1996), and thus a scale constructed by Soong and Li (1988) in Taiwan was used. The PRS consists of 37 items and has eight factors. The name and meaning of the factors are as follows: (a) religious belief--has faithful religious belief, (b) nature/environment--believes that nature/environment, such as *fengshui*, can affect individuals' well-being and fortune, (c) virtue vs. evil--God will reward the good and punish the evil, (d) religious activities--engages in religious activities, (e) value/happiness of life--experiences values and happiness in life, (f) afterlife--believes in afterlife and reincarnation, (g) quality of physical substance/the beliefs in Chinese medicine--believes that different physical substance have different quality which affects health, and (h) birth/pregnancy--believes there is a god in charge of pregnancy. The original PRS utilizes a 4-point Likert scale for each item, but in this study a 7-point Likert scale was used for the sake of sameness as the RPBS.

RESULTS

For the RPBS, the internal consistency (Cronbach alpha) was .88, with the corrected item-total correlation varied from .10 to .76. The results of confirmatory factor analysis showed that seven factors were extracted with 72.8% of the total variance accounted for. The scree plot showed that two factors might be the best solution. The correlation matrix between the factors of the RPBS and PRS was shown in Table 1.

Table 1 Correlation Matrix between the Factors of the Revised Paranormal Belief Scale (RPBS) and Personal Religious Scale (PRS)

	RPBS						
	TRAD	PSI	WITCH	SUPER	SPIRIT	EXTRA	PRE
PRS							
BELIEF	.426**	.369*	.213	.292	.596***	.334*	.164
NAT	.403**	.054	.345*	.601***	.445**	.290	.419**
VIRTUE	.478**	-.117	.169	.299	.274	.223	.334*
ACTIV	.510***	.435**	.356*	.036	.417**	.308	.115
VALUE	.052	.072	-.007	-.014	.036	-.017	.151
AFTER	.850***	.439**	.348*	.237	.611***	.486***	.292
PHYSI	.156	.065	-.040	-.016	.173	.012	.264
BIRTH	-.017	.146	.314*	.539***	.449**	.201	.398*

Note. For the factors of the RPBS, TRAD = traditional religious belief; PSI = psi; WITCH = witchcraft; SUPER = superstition; SPIRIT = spiritualism; EXTRA = extraordinary life forms; PRE = precognition. For the factors of the PRS, BELIEF = religious belief; NAT = nature/environment; VIRTUE = virtue vs. evil; ACTIV = religious activities; VALUE = value/happiness of life; AFTER = afterlife; PHYSI = quality of physical substance; BIRTH = birth/pregnancy.

* $p < .05$. ** $p < .01$. *** $p < .001$.

For the variability of intensity (cognitive complex), the correlation with each of the factors of both the RPBS and PRS was not significant except that with the religious belief factor of the PRS ($r = -.517$, $p < .001$) shown in Table 2 and Table 3.

Table 2 Correlation Matrix between the Variability of Intensity and Paranormal Belief Scale (RPBS)

	RPBS						
	TRAD	PSI	WITCH	SUPER	SPIRIT	EXTRA	PRE
Variability of Intensity	-.223	-.200	.003	-.205	-.223	-.191	-.202

Table 3 Correlation Matrix between the Variability of Intensity and Personal Religious Scale (PRS) Revised

	PRS							
	BELIEF	NAT	VIRTUE	ACTIV	VALUE	AFTER	PHYSI	BIRTH
Variability of Intensity	-.517**	-.109	-.200	-.172	-.274	-.248	-.191	-.202

** $p < .01$

DISCUSSION

Regarding the construction of the Chinese version of the RPBS, it appears that it had satisfactory reliability (Cronbach alpha = .88). The construct validity could be validated from the correlation matrix between the factors of the RPBS and PRS. The correlations that were significant reflected reasonable relationship between the factors from the two scales respectively in the context of the Chinese culture in Taiwan. For example, the factor traditional religious belief of the RPBS had significant correlations with the following factors of the PRS: religious belief, nature/environment, virtue vs. evil, religious activities, and afterlife. This reflected rather accurately the prevailing traditional Chinese religious thinking. Another example was the factor superstition of the RPBS had significant correlations with the factors nature/environment and birth/pregnancy of the PRS.

Results indicated that paranormal belief and religiosity were two different constructs despite of some possible overlap, such as scales of traditional religious belief, spiritualism, believing that nature/environment can affect individuals' well-being and fortune, and afterlife (all these factors had five significant correlations with the other scale, see Table 1). Two factors of the PRS (virtue vs. evil and quality of physical substance) appeared to have no relationship with the RPBS. The lack of relationship between RPBS and the factor "value/happiness of life" of PRS might imply experiencing one's happiness and paranormal belief were two different constructs. The lack of relationship between RPBS and the factor "quality of physical substance" of PRS might indicate beliefs in Chinese medicine and paranormal belief are two different beliefs. This might reflect the cultural difference between the Western and Eastern worlds as well.

Comparing the items of the traditional religious belief factor and religious belief factor of the RPBS and PRS respectively, the main difference was that the latter factor measured religious faithfulness rather than religious belief. It is interesting that the results of this study indicated the more religiously faithful a person was, the less his/her cognitive complexity would be and vice versa. Since education may help increase one's cognitive complexity, it still needs to be verified empirically whether the latter is a mediator between education and religious belief.

Finally, the limitations of this study include small sample size ($N = 40$) and lack of back-translation procedure of the Chinese version of the RPBS. More research is also needed to investigate the psychometric properties of both the RPBS and PRS. Moreover, the cultural differences in paranormal belief and religiosity are also important issues to be explored in the future.

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