

Belief in Paranormal Phenomena: Assessment Instrument Development and Implications for Personality Functioning

Jerome Tobacyk and Gary Milford
Area of Behavioral Sciences
Louisiana Tech University

A 25-item self-report questionnaire designed to assess belief in the paranormal was constructed based on the results from factor analysis of a 61-item pool administered to 391 college students. Factor analysis revealed seven independent dimensions comprising belief in the paranormal. These factors were Traditional Religious Belief, Psi Belief, Witchcraft, Superstition, Spiritualism, Extraordinary Life Forms, and Precognition. The Paranormal Scale was constructed by selecting either three or four marker items to represent each of the seven dimensions as paranormal subscales. Descriptive statistics for this Paranormal Scale and the seven subscales are presented, as well as reliability statistics. Studies were presented that support the validity of this Paranormal Scale and subscales with such personality/adjustment constructs as internal-external locus of control, sensation seeking, death threat, actual self-ideal self-concept, uncritical inferences, dogmatism, and irrational beliefs. It was concluded that this scale offers promise as an assessment instrument for paranormal belief.

Recently, much concern has been expressed about a revival of interest in paranormal phenomena (Alcock, 1981; Bainbridge & Stark, 1981; Marks & Kammann, 1980). This current popular interest in the paranormal is evident from the large numbers of newspaper articles, books, television programs, movies, and organized group activities that focus on this topic (Scheidt, 1973). Although there is no full consensus about the definition of *paranormal*, three criteria were used here (Alcock, 1981; Braude, 1978): (a) inexplicability in terms of current science, (b) explicability achieved only by major revisions in basic limiting principles of science, and (c) incompatibility with normative perceptions, beliefs, and expectations about reality. In this study, traditional religious beliefs were included as a paranormal belief dimension, because it appears that religious and other paranormal beliefs originate in the same fundamental human experience and might serve similar functions. Indeed Clark (1977) and LeShan (1966) proposed themes shared by religious and other para-

normal belief systems, including (a) methods of communication outside of typical, normal ways, (b) a unity or basic principle as the foundation of the universe, (c) the view of man as both a body and a mind/spirit/soul, (d) the notion of an afterlife, and (e) the notion that the reality we typically experience is not the "true" reality. Thus, the definition of paranormal used here includes a wide range of beliefs and experiences concerning religion, psi (clairvoyance, precognition, telepathy, and psychokinesis), the occult, witchcraft, superstitions, the supernatural, and extraordinary and extraterrestrial life forms. Because interest in paranormal phenomena has assumed such a visible role in modern life, it is important that the implications of paranormal belief for the person and for society be empirically evaluated. An examination of relationships between paranormal beliefs and personality structure and functioning might indicate implications of these beliefs for the person. However, a necessary step in evaluating the implications of paranormal beliefs is the development of reliable and valid techniques to assess belief in paranormal phenomena.

There are several assessment instruments designed to measure the degree of belief in

Requests for reprints should be sent to Jerome Tobacyk, Louisiana Tech University, Box 10048, Area of Behavioral Sciences, Ruston, Louisiana 71272.

paranormal phenomena (Blum & Blum, 1974; Jones, Russell, & Nickel, 1977; Killen, Wildman, & Wildman, 1974; Randall & Desrosiers, 1980; Scheidt, 1973). Although these assessment instruments contribute to our understanding of paranormal beliefs, there is a need for improved methodology. For example, most instruments used to assess paranormal belief are primarily rationally derived. That is, the experimenter constructed a paranormal belief-assessment instrument based on a priori assumptions about what constitutes paranormal belief. Some experimenters (Randall & Desrosiers, 1980) have assumed that the structure of paranormal belief is largely unidimensional. That is, they have assumed that there is a general personality trait of "belief in the paranormal," and the construction of their assessment instrument has been consistent with this assumption. Other experimenters (Scheidt, 1973) have assumed that there are two or more relatively independent dimensions of paranormal belief and have constructed assessment instruments accordingly.

However, the actual structure of paranormal belief in the population remains an empirical question. A more valid procedure in the construction of a paranormal belief-assessment instrument might be first, to assess the structure of paranormal belief in a sample and, second, to base the construction of an assessment instrument on the paranormal belief structure obtained in that sample.

This investigation reports on the construction of a scale designed to measure degree of belief in paranormal phenomena based on this recommended strategy. This investigation began with an item pool designed to assess a wide variety of paranormal beliefs. This item pool was administered to a sample of subjects. Then, on the basis of findings from factor analysis, the dimensions comprising the structure of paranormal belief in the sample were identified. Next, a paranormal scale was constructed that included items representing each of the major independent dimensions found to comprise paranormal belief structure. This factor-analytic approach to scale development allows the construction of paranormal subscales, with each subscale reflecting a different paranormal belief dimension. The use of a paranormal scale with

such a subscale structure may allow meaningful study of relationships between different paranormal belief dimensions and criterion variables.

Method

Construction of the Item Pool

The experimenter selected 61 items that he judged would sample as wide a range of paranormal beliefs as possible. Some items were selected or modified from existing assessment instruments. Other items were constructed by the experimenter.

Subjects

Subjects were 391 Louisiana Tech University students enrolled in various introductory psychology courses. The mean age of subjects was 20.2 years ($SD = 3.3$). There were 201 males (mean age = 20.4, $SD = 2.7$) and 190 females (mean age = 20.1, $SD = 3.3$).

Procedure

Subjects were administered the 61 paranormal belief items in classroom settings and were instructed to rate their degree of agreement with each of the items on a 5-point rating scale. The points on this rating scale ranged from 1 ("strongly disagree with this item"), through 3 ("undecided or don't know"), to 5 ("strongly agree") with that item.

Method of Analysis

The ratings of the 61 paranormal belief items were intercorrelated with Pearson product-moment correlations and factor analyzed using a principle axis method. Promax oblique rotations revealed little evidence of dependence between factors, which allowed for the use of orthogonal rotations. The 13-factor varimax solution, selected as the most clear, accounted for 60.7% of the total variance. Of these 13 factors, 7 appeared meaningfully interpretable as common factors. Remaining factors were primarily singlets and doublets that were unstable through further rotations.

The items that were marker items (that is, loaded $> \pm .50$) for each of the seven factors were examined, and the factors were interpreted and labeled by the experimenter.

Factor 1 (Traditional Religious Belief) accounted for 17.2% of the total variance. Each of the 14 marker items concerned an aspect of the traditional Christian religious belief system.

Factor 2 (Psi Beliefs) accounted for 12% of the total variance. The four marker items for Factor 2 concerned either psychokineses or mental telepathy.

Factor 3, (Witchcraft) accounted for 6.9% of the total variance. Each of the six marker items for this factor concerned a form of witchcraft. For example, the items concerned black magic, voodoo, spells, and witches.

Factor 4 (Superstition) accounted for 3.9% of the total

variance. Each of the three marker items concerned a popular superstition.

Factor 5 (Spiritualism) accounted for 3.1% of the total variance. This factor is associated with the endorsement of several paranormal beliefs that are associated with the spiritualistic ideology, such as communication with the dead, astral projection, and reincarnation.

Factor 6 (Extraordinary Life Forms) accounted for 3% of the total variance. Each of the three marker items concerned a life form whose existence is controversial, such as the Loch Ness monster, Big Foot, and the abominable snowman. It is noted that the item "There is life on other planets" loaded moderately (.41) on this factor. However, the magnitude of the factor loading of this item, although moderate, did not reach the .50 criterion needed to be retained as a marker item.

Factor 7 (Precognition) accounted for 2.1% of the total variance. All three marker items concerned predicting the future via paranormal means.

Note that all seven factors had clear, consistent interpretations. Also note that, in this sample, the structure of paranormal belief is clearly multidimensional. The first, that is, the largest, factor obtained accounted for only 17.2% of the total variance. This amount of total variance is clearly too small to support a general factor interpretation. Such a general factor interpretation would be necessary if one argued for a single "Belief in the Paranormal" dimension or personality trait.

Next, a 25-item Paranormal Scale was constructed by selecting the clearest marker items for each of the seven factors. There were two criteria for including an item in the Paranormal Scale: (a) the item must possess one of the largest magnitude factor loadings on a particular factor, and (b) the item must clearly reflect the theme of the factor it is selected to represent.

This item-selection procedure resulted in a 25-item paranormal scale. Four of the seven factors are each represented by four marker items. For the three remaining factors (Superstitions, Extraordinary Life Forms, and Precognition), each factor was represented by three marker items. For each of the 25 items, the theme of the factor each item represents, as well as the loading of each item on its factor, are listed in Table 1. The loading of each of the 25 items on each of the seven factors are presented in Table 2.

This 25-item Paranormal scale has several strengths due to its factor-analytic derivation. First, rather than based on a priori assumptions of the experimenter, it is based on a direct, empirical examination of the structure of paranormal belief in a college student sample. Second, because each of the seven independent dimensions of paranormal belief is represented by three or four discrete items, a separate subscale score can be obtained for each of the seven separate paranormal dimensions. The convergent and discriminant properties of these subscales can be studied in relation to criterion variables.

Results and Discussion

Descriptive Statistics for the Paranormal Scale

The 25-item Paranormal Scale was administered to 424 undergraduate students

(229 males and 183 females). Note that the number of males and females does not equal the total number of subjects, due to the loss of information for 12 subjects. Table 3 shows the descriptive statistics (*Ms* and *SDs*) for the full Paranormal Scale and for the seven paranormal subscales for the full, male and female sample. Also provided are the results of a series of *t* tests conducted between males and females on the full Paranormal Scale scores and on each of the seven paranormal subscale scores.

The full Paranormal Scale score for the full sample was 76.87, which indicates that the average score for each of the 25 Paranormal Scale items in this sample was approximately 3.07. This indicates a slight tendency to "slightly agree with" or "express belief in" the 25 items overall, because 3.0 is the midpoint of the rating scale. As indicated by an inspection of the subscale scores for the full sample, the three paranormal subscales with average scores above 3, which indicates a tendency to agree with or express belief in the subscale items, were Traditional Religious Belief, with the highest mean score, ($M = 4.2$), Psi Belief ($M = 3.19$), and Precognition ($M = 3.20$). The most strongly disagreed-with subscales, indicating the least-expressed belief, were Superstition, with the lowest mean score ($M = 2.08$) and Spiritualism ($M = 2.64$).

Also, as indicated in Table 3, although the females recorded greater full Paranormal Scale scores ($M = 77.98$), which showed greater agreement or belief in the 25 paranormal items, than did the males ($M = 76.01$), this difference was not statistically significant, $t(410) = -1.67, p < .10$.

However, when the paranormal subscales are inspected, sex differences become clearer. As indicated in Table 3, for two of the paranormal subscales (Traditional Religious Belief and Precognition) females recorded significantly greater mean scores than did males, which indicated greater belief in the phenomena assessed by these two subscales. However, on the Extraordinary Life Forms subscale, males recorded a significantly greater mean score, which indicated greater belief, than did females. This finding is of interest because it is often contended that females are greater believers in paranormal phenomena than are males. Concerning certain specific dimen-

Table 1
*The 25-Item Paranormal Scale Classified According to Factor-Analytically Derived Subscale
 With Listings of Factor Loadings*

Item no.	Loading	Subscales
Factor 1: Traditional Religious Belief subscale		
1	.77	The soul continues to exist though the body may die.
8	.74	There is a devil.
15	.72	I believe in God.
22	.78	There is a heaven and hell.
Factor 2: Psi subscale		
2	.79	Some individuals are able to levitate (lift) objects through mental forces.
9	.74	Psychokinesis, the movement of objects through psychic powers, does occur.
16	.69	A person's thoughts can influence the movement of a physical object.
23	-.51*	Mind reading is not possible.
Factor 3: Witchcraft subscale		
3	.75	Black magic really exists.
10	.75	Witches do exist.
17	.68	Voodoo is a real method to use paranormal powers.
24	.55	There are actual cases of Voodoo death.
Factor 4: Superstition subscale		
4	.76	Black cats can bring bad luck.
11	.75	If you break a mirror, you will have bad luck.
18	.69	The number "13" is unlucky.
Factor 5: Spiritualism subscale		
5	.73	Your mind or soul can leave your body and travel (astral projection).
12	.72	During altered states, such as sleep or trances, the spirit can leave the body.
19	.53	Reincarnation does occur.
25	.50	It is possible to communicate with the dead.
Factor 6: Extraordinary Life Forms subscale		
6	.75	The abominable snowman of Tibet exists.
13	.76	The Loch Ness monster of Scotland exists.
20	.73	Big Foot exists.
Factor 7: Precognition subscale		
7	.64	Dreams can provide information about the future.
14	.54	Some people have the ability to predict the future.
21	-.69*	The idea of predicting the future is foolish.

Note. $n = 391$.

* Item is reversed for scoring purposes.

sions of the paranormal, it appears that males are significantly greater believers than are females.

Test-retest reliability of the 25-item Paranormal Scale over a 4-week interval was .89 for a 25-subject sample. Test-retest reliabilities for each of the seven separate subscales ranged from .60 to .87 over a 4-week interval. These subscale reliability coefficients were Traditional Religious Belief (.75), Psi Belief

(.84), Witchcraft (.69), Superstition (.67), Spiritualism (.66), Extraordinary Life Forms (.82), and Precognition (.60).

Intercorrelations Among Paranormal Subscales

A listing of Pearson product-moment intercorrelations among the seven Paranormal subscales is provided in Table 4. Note that

Table 2

A Listing of the 25 Paranormal Scales Factor Loadings on Each of the Seven Factors

Subscale	Item no.	1	2	3	4	5	6	7
1. Traditional Religious Belief	1	.77	-.03	.02	-.20	.13	.13	.03
	8	.74	-.00	.06	.02	-.08	-.02	.11
	15	.72	-.01	-.07	-.01	-.21	.00	.16
	22	.78	-.02	-.01	.03	-.18	-.08	.17
2. Psi	2	.08	.79	.20	.00	.10	.15	.11
	9	-.02	.74	.21	.06	.14	.10	.09
	16	-.04	.69	.17	-.03	.32	.12	.05
	23	-.07	-.51	-.01	.07	-.04	-.02	-.25
3. Witchcraft	3	.18	.12	.75	-.01	.01	.08	-.00
	10	.02	.09	.75	-.00	-.04	.05	.03
	17	.03	.01	.68	.10	.11	.09	.12
	24	.06	.23	.55	.11	.24	-.00	.04
4. Superstition	4	-.16	.10	.12	.69	.24	.00	-.03
	11	.07	-.02	.09	.76	-.06	.05	.09
	18	-.14	-.04	.06	.75	.22	-.03	-.03
5. Spiritualism	5	-.07	.25	.18	.18	.50	.24	.09
	12	-.16	.19	.10	.35	.53	.09	.11
	19	-.05	.07	.15	.09	.72	.08	.21
	25	-.01	.26	.14	.07	.73	.08	.06
6. Extraordinary Life Forms	6	-.06	.08	.14	.02	-.00	.75	-.00
	13	.15	.07	.09	.04	.03	.76	.11
	20	-.02	.15	.03	-.00	.23	.73	.14
7. Precognition	7	.24	.40	.12	.06	.07	.16	.54
	14	.27	.01	.03	.00	.21	.16	.64
	21	-.01	-.17	-.07	.02	-.12	-.05	-.69

14 of 21 correlations are below .30, 6 of 21 correlations are from .31 to .40, and 1 correlation is .49. All of these correlations are in the small-to-moderate range. None is large enough to support the contention that two

subscales are measuring the same paranormal belief dimension. Because these correlations are based on a 424-subject sample, statistical significance alone is not an appropriate procedure to determine relatedness

Table 3

Paranormal Scale and Subscale Means, Standard Deviations, and t Tests for Males and Females

Scale and subscale	Full sample (n = 424)		Males (n = 229)		Females (n = 183)		t test M males versus M females
	M	SD	M	SD	M	SD	
Paranormal	76.87	11.97	76.01	11.93	77.98	11.70	-1.67*
Subscales							
Traditional Religious Belief	4.24	.90	4.08	.98	4.48	.70	-4.53**
Psi Belief	3.19	.84	3.15	.83	3.22	.83	-.77
Witchcraft	2.77	.85	2.77	.92	2.80	.77	-.36
Superstition	2.08	.82	2.02	.78	2.13	.85	-1.28
Spiritualism	2.64	.79	2.63	.73	2.66	.85	-.39
Extraordinary Life Forms	2.82	.83	2.99	.81	2.61	.80	4.74**
Precognition	3.52	.84	3.42	.85	3.65	.78	-2.83**

Note. Twelve subjects' sexes were unknown in the full sample due to loss of information.

* $p < .10$. ** $p < .001$. *** $p < .005$.

Table 4
Pearson Product-Moment Correlations Among the Seven Paranormal Subscales

Subscale	1	2	3	4	5	6	7
1. Traditional Religious Belief		-.01	.18*	-.06	-.13*	.04	.26*
2. Psi Belief			.34*	.10*	.49*	.32*	.40*
3. Witchcraft				.14*	.29*	.27*	.29*
4. Superstition					.32*	.11*	.07
5. Spiritualism						.33*	.33*
6. Extraordinary Life Forms							.23*
7. Precognition							

Note. $n = 424$.

* $p < .05$.

between subscales. For example, a correlation of .09 would be statistically significant at $p < .05$ for a sample size of 424. The amount of shared variance (r^2) between scales appears to be a more appropriate index of relatedness. The r^2 index indicates that 20 of 21 subscales share 16% or less common variance. Although subscales 2 (Psi Beliefs) and 5 (Spiritualism), with a correlation of .49, share approximately 24% common variance, evidence presented in the construct-validity section provides strong support for the discriminant validity of these subscales. Thus, it is concluded that the intercorrelations among Paranormal subscales support the notion that these seven subscales are measuring different paranormal belief dimensions.

Construct Validity of the Paranormal Scale and Implications of Paranormal Beliefs for Personality Functioning

Several findings support the construct validity of the Paranormal Scale and the discriminant validity of the paranormal subscales, as well as show implications of paranormal beliefs for personality functioning. The Paranormal Scale and each of seven personality-assessment instruments were administered to separate college student samples, with n s ranging from 51 to 96. The seven instruments were (a) the Locus of Control Scale, a measure of internal-external control (Rotter, 1966), (b) the Sensation Seeking Scale, a measure of individual differences in optimal level of stimulation and arousal (Zuckerman, 1971), (c) the Threat Index, a measure of death threat (Hays, 1974), (d) an actual self-ideal self-concept discrepancy

measure, thought to reflect level of adjustment or self-esteem (Hays, 1974), (e) the Uncritical Inferences Test, a measure of the characteristic degree of inference making beyond the facts given by observation (Haney, 1954), (f) the Dogmatism Scale (Form E), a measure of the degree of cognitive openness/closedness (Rokeach, 1960), and (g) an Irrational Belief Questionnaire (Newmark, Frerking, Cook, & Newmark, 1973), a measure of Ellis's (1962) Irrational Beliefs. These seven assessment instruments were selected because, due to theoretical considerations, they were hypothesized to be related to paranormal beliefs.

Correlations between Paranormal Scale and subscale scores with scores on each of these seven instruments are listed in Table 5. Major hypotheses and findings reported in Table 5 are discussed below.

Because paranormal phenomena frequently concern external forces that effect individual lives, it was hypothesized that positive correlations would be recorded between paranormal-scale and subscale scores and locus-of-control scale scores. As hypothesized, greater (more external) locus-of-control scores (associated with the belief that one's life reinforcements are determined by external forces) were significantly correlated with (a) full Paranormal Scale scores ($r = .28$, $p < .009$), and (b) Extraordinary Life Forms subscale scores ($r = .22$, $p < .04$). Each of the six remaining subscales recorded positive, though nonsignificant, correlations with locus-of-control scale scores.

It was hypothesized that greater sensation seeking would be associated with greater reported belief in paranormal phenomena, be-

Table 5

Correlations for Paranormal Scale and Subscale Scores With Internal-External Scale, Sensation Seeking Scale, Threat Index, Actual Self-Ideal Self-Concept, Uncritical Inference Test, Dogmatism Scale, and Irrational Belief Scale Scores

Scale and subscale	I-E scale (n = 87)		Sensation seeking (n = 51)		Threat index (n = 78)		Actual self ideal self self- concept (n = 78)		Uncritical inference (n = 96)		Dogmatism scale (n = 86)		Irrational belief scale (n = 86)	
	r	p	r	p	r	p	r	p	r	p	r	p	r	p
Paranormal	.28	.009	.11		-.11		-.08		.03		.14		.18	.09
Subscales														
Traditional Religious														
Belief	.17	.09	-.14		-.23	.05	-.22	.05	.34	.001	.18	.09	-.01	
Psi Beliefs	.14		.23	.10	-.01		.03		-.07		.04		.17	
Witchcraft	.19	.07	-.01		.01		.04		-.01		.22	.04	.16	
Superstitious	.09		.07		-.01		.01		-.07		.10		.27	.01
Spiritualism	.12		.24	.08	.13		.00		-.23	.03	.01		.21	.04
Extraordinary Life														
Forms	.22	.04	.13		-.13		-.21	.06	-.00		-.08		-.02	
Precognition	.15		-.01		-.09		-.15		.12		.12		.02	

cause belief in many of these phenomena may reflect a more exciting and mysterious world view than that based on more normative beliefs. However, no significant correlations between Paranormal Scale or subscale scores and Sensation-Seeking Scale scores were obtained. Two Paranormal subscales showed trends in the hypothesized direction: Psi Beliefs ($r = .23$, $p < .10$) and Spiritualism ($r = .24$, $p < .08$). It is noted that these correlations were based on the smallest n in the study ($n = 51$) and that correlations of these magnitudes would be significant for larger samples.

Some researchers (Becker, 1973; Rank, 1968) contend that a basic function of paranormal (including religious) beliefs is to exorcise fear of death by positing personal spiritual survival of physical death. Therefore, it was hypothesized that scores that indicate greater belief in paranormal phenomena, which reflect the notion of survivability of physical death (Traditional Religious Belief and Spiritualism subscales), would be associated with smaller scores on the Threat Index (which indicates lesser death threat). As hypothesized, Traditional Religious Belief subscale scores were significantly and negatively correlated with Threat Index scores ($r = -.23$, $p < .05$).

Although earlier studies (Adorno, Frenkel-Brunswick, Levinson, & Sanford, 1950; Emme, 1940; Maller & Lundeen, 1933) reported significant relationships between paranormal belief and such constructs as anxiety, maladjustment and emotionality, more recent studies (Jones et al., 1977) did not report such relationships. Therefore, it was expected that, generally, paranormal belief would not be associated with greater actual self-ideal self-discrepancy. It was hypothesized that Traditional Religious Belief subscale scores would be associated with lesser actual self-ideal self-discrepancy because of the extensive support systems provided by traditional religious institutions in our culture. As hypothesized, Traditional Religious Belief subscale scores were significantly and negatively correlated with actual self-ideal self-discrepancy scores ($r = -.22$, $p < .05$). Further, as expected, none of the other Paranormal subscale scores recorded significant correlations with actual self-ideal self-discrepancy scores. Thus, inasmuch as actual self-ideal self-discrepancy reflects adjustment or self-esteem, these two constructs are not generally associated with paranormal beliefs.

Because many paranormal beliefs are inferential (not empirically verifiable), it was

hypothesized that greater Paranormal Scale and subscale scores would be associated with lesser scores on the Uncritical Inferences Test (which would indicate less critical inference making). As hypothesized, Spiritualism subscale scores were significantly and negatively correlated with Uncritical Inference Test scores ($r = -.23, p < .03$). However, Traditional Religious Belief subscale scores were significantly and positive correlated with Uncritical Inference Test scores ($r = .34, p < .001$). Thus, less-critical inference making appears to be associated with only certain paranormal beliefs, such as astral projection, reincarnation, and communication with the dead. Traditional religious beliefs, which are the least culturally deviant among the paranormal beliefs, appear to be associated with less-uncritical inference making.

It was not expected that dogmatism would be associated with paranormal beliefs in general. It was hypothesized that dogmatism would be associated with greater scores on paranormal subscales that are less accepted or supported in our culture, such as witchcraft, superstition, and spiritualism beliefs. As expected, Dogmatism Scale scores were not significantly correlated with full Paranormal Scale scores ($r = .14, ns$). As hypothesized, Dogmatism Scale scores were significantly correlated with Witchcraft subscale scores ($r = .22, p < .03$). Thus, it is clear that Dogmatism is not a necessary or co-occurring condition for most paranormal beliefs.

Using Berg's (1955) Deviation Hypothesis as a rationale, it was speculated that greater scores on a questionnaire based on Ellis's Irrational Beliefs (which are thought to be a cause of psychopathology; Ellis, 1962) might be associated with less-frequently held (or more culturally deviant) paranormal beliefs. Indeed, Ellis's Irrational Beliefs appear to have some negative implications for cognitive functioning. They appear to be dogmatically held and to interfere with logical inference making (Tobacyk & Milford, 1982), as may some types of paranormal beliefs. Thus, it was hypothesized that higher scores on the Irrational Belief Questionnaire would be associated with higher scores on the Witchcraft, Superstition, and Spiritualism subscales. As hypothesized, significant positive correlations were obtained between the Irrational

Belief Questionnaire and the Superstition ($r = .27, p < .01$) and Spiritualism ($r = .21, p < .04$) subscales.

In conclusion, it appears that this Paranormal Scale and these subscales have potential as an assessment instrument for paranormal beliefs. Paranormal beliefs appear to have implications for personality functioning, especially that which concerns locus of control, death threat, self-concept, inference making, dogmatism, and irrational beliefs. Perhaps the most significant finding in this research is that, rather than there being a single personality dimension of "belief in the paranormal," there are several relatively independent paranormal belief dimensions, some of which have different implications for personality and adjustment.

References

- Adorno, T., Frenkel-Brunswick, E., Levinson, D., & Sanford, N. *The authoritarian personality*. New York: Harper, 1950.
- Alcock, J. *Parapsychology: Science or magic?* New York: Pergamon Press, 1981.
- Bainbridge, W., & Stark, R. Superstitions: Old and new. In K. Frazier (Ed.), *Paranormal borderlands of science*. Buffalo, N.Y.: Prometheus Books, 1981.
- Becker, E. *The denial of death*. New York: Free Press, 1973.
- Berg, I. Response bias and personality: The deviation hypothesis. *Journal of Psychology*, 1955, 40, 61-71.
- Blum, S., & Blum, L. H. Do's and Don'ts: An informal study of some prevailing superstitions. *Psychological Reports*, 1974, 35, 567-571.
- Braude, S. On the meaning of "Paranormal." In J. Ludwig (Ed.), *Philosophy and parapsychology*. Buffalo, N.Y.: Prometheus Books, 1978.
- Clark, W. Parapsychology and religion. In B. Wolman (Ed.), *Handbook of parapsychology*. New York: Van Nostrand Reinhold, 1977.
- Ellis, A. *Reason and emotion in psychotherapy*. New York: Lyle Stuart, 1962.
- Emme, E. Modification and origin of certain beliefs in superstition among 96 college students. *Journal of Psychology*, 1940, 10, 279-291.
- Haney, W. Measurement of the ability to discriminate between inferential and descriptive statements. (Doctoral dissertation, Northwestern University, 1953). *Dissertation Abstracts International*, 1954, 14, 405-406. (University Microfilms No. 7037)
- Hays, C. *A methodological investigation of the threat index and the introduction of a short form*. Unpublished senior thesis. University of Florida, 1974.
- Jones, W., Russell, D., & Nickel, T. Belief in the paranormal scale: An objective instrument to measure belief in magical phenomena and causes. *JSAS Catalog of Selected Documents in Psychology*, 1977, 7, 100. (Ms. No. 1577)

- Killen, P., Wildman, R., & Wildman, R. Superstitiousness and intelligence. *Psychological Reports*, 1974, 34, 1158.
- LeShan, L. *The medium, the mystic, and the physicist*. New York: Viking Press, 1966.
- Maller, J., & Lundeen, G. Superstition and emotional maladjustment. *Journal of Educational Research*, 1933, 27, 592-617.
- Marks, D., & Kammann, R. *The psychology of the psychic*. Buffalo, N.Y.: Prometheus Books, 1980.
- Newmark, C., Frerking, P., Cook, L., & Newmark, L. Endorsement of Ellis's irrational beliefs as a function of psychopathology. *Journal of Clinical Psychology*, 1973, 29, 300-302.
- Randall, T., & Desrosiers, M. Measurement of supernatural belief: Sex differences and locus of control. *Journal of Personality Assessment*, 1980, 44, 493-498.
- Rank, O. *Art and artist: Creative urge and personality development*. New York: Agathon Press, 1968.
- Rokeach, M. *The open and the closed mind*. New York: Basic Books, 1960.
- Rotter, J. Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs*, 1966, 80 (1, Whole No. 609).
- Scheidt, R. Belief in supernatural phenomena and locus of control. *Psychological Reports*, 1973, 32, 1159-1162.
- Tobacyk, J., & Milford, G. Criterion validity for Ellis' irrational beliefs: Dogmatism and uncritical inferences. *Journal of Clinical Psychology*, 1982, 38, 605-607.
- Zuckerman, M. Dimensions of sensation seeking. *Journal of Consulting and Clinical Psychology*, 1971, 36, 45-52.

Received January 25, 1982 ■

Instructions to Authors

APA policy prohibits an author from submitting the same manuscript for concurrent consideration by two or more journals. Authors should prepare manuscripts according to the *Publication Manual of the American Psychological Association* (3rd edition). All manuscripts are subject to editing for sexist language. Manuscripts must include an abstract of 100-150 words. Instructions on tables, figures, references, metrics, and typing (all copy must be double-spaced) appear in the Manual. Articles not prepared according to the Manual will not be reviewed. For further information on content, authors should refer to the editorial in the March 1979 issue of this journal (Vol. 37, No. 3, pp. 468-469).

The reference citation for any article in any JPSP section follows APA's standard reference style for journal articles; that is, authors, year of publication, article title, journal title, volume number, and page numbers. The citation does *not* include the section title.

Manuscripts should be submitted in quadruplicate (the original and three photocopies) to the appropriate section editor. All copies should be clear, readable, and on paper of good quality. Editors' addresses appear on the inside front cover of the journal. Authors should keep a copy of the manuscript to guard against loss.

Blind review is optional and must be specifically requested when a manuscript is first submitted. In those cases, authors' names and affiliations must appear only on a separate title page, included with each copy of the manuscript. Footnotes containing the identity of authors or their affiliations must be on a separate sheet.

Section editors reserve the right to redirect papers among themselves as appropriate unless an author specifically requests otherwise. Rejection by one section editor is considered rejection by all, therefore a manuscript rejected by one section editor should not be submitted to another.