

## Correlation of the Religious and the Paranormal

### Beliefs to Personality

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#### ABSTRACT

Beliefs happen to be the most significant indicators of a person's overall personality and provide us a window on his mental constructs. The study of the paranormal activities and phenomena has been riddled with controversy since its conception and previous researches revealed mixed and contradictory findings. The present study focuses to study correlation between Religious beliefs, paranormal beliefs and the personality factors across different religious groups, among individuals of different age groups and socio-economic status. Significant positive correlation was found between religiosity and paranormal beliefs as well as between religiosity and the traditional religious beliefs, psi and witchcraft subscales of the paranormal beliefs scale. Results also report a negative correlation between religious beliefs and the spiritualism, extraordinary-life-forms and precognition subscales of the paranormal beliefs scale. Neuroticism was found to be the only personality factor significantly predicting paranormal beliefs. Muslims scored higher on the traditional religious beliefs subscale in comparison with the Hindus. On the other hand, among the Hindus a higher degree of endorsement of witch-craft was observed. However, so far as the Christians are concerned no significant differences were observed either on global paranormal beliefs or any of the subscales of the paranormal beliefs. Socially marginal groups were found to be more susceptible to paranormal beliefs. They scored higher on psi, witchcraft, superstition, spiritualism, precognition as well as the total- paranormal beliefs scale.

**Keywords:** *Religious Beliefs, Paranormal Beliefs, Personality Factors.*

**B**eliefs happen to be the most significant indicators of a person's overall personality and provide us a window on his mental constructs. Yet there is little agreement as to what they are; or how they should be construed. They are basic to our understanding of a wide range of central phenomena in modern psychology. Beliefs are the key components of our personalities and sense of identity, and our expression of beliefs often defines us to others. The topic of beliefs is vast and diverse. It crosses many disciplinary boundaries both within psychology and across many traditional disciplines. It has an extensive coverage ranging from traditional beliefs to

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anomalous or paranormal beliefs. While on one hand a great deal of research has been carried out on traditional beliefs and they have been discussed at length, anomalous beliefs, on the other hand, are the beliefs in powers and phenomena that lie outside the realm of normal science; and as such this field has been generally left under-investigated. Anomalous or paranormal beliefs account for the emphasis on Extrasensory perception (ESP), astrology, witchcraft, ghosts, unidentified flying objects (UFO) abductions and the like. In order to account for people's real experiences in these areas, one has to deal with the topics about which much has been read and heard, but haven't had an easy relationship with mainstream psychology.

Nearly every culture throughout history has reported beliefs and experiences with paranormal phenomena. Paranormal phenomena are defined as events that violate the boundaries of current scientific belief. In spite of having no definitive proof to substantiate these beliefs more than 90 percent of American adults profess to believe in at least one phenomenon (Gallup, 1997). Research indicates that the rise in paranormal phenomena beliefs began in the 1960's with the massive sale of parapsychology books. Ouija boards were outselling monopoly games (Truzzi, 1972). Over the last three decades or so, scholars from a spectrum of disciplines have lent their expertise in trying to understand the increasing beliefs in paranormal phenomena. Despite the fact that thousands of people are reporting paranormal events each year, the majority of research is in the form of public opinion polls, that encompass a yes/no answer format, leaving the reader to fill in the rest.

The study of the paranormal activities and phenomena has been riddled with controversy since its conception. It is claimed that some people, utilizing sense beyond the ordinary, exhibit powers that cannot be explained by traditional science. Many wondrous or anomalous experiences support belief in spiritual powers or forces; and as such, play an important role in the development of religious ideologies. Scientific interest in the subject is of a relatively recent origin, but belief in the reality of such phenomena has been widespread since the earliest recorded times. Before the rise of modern science, the causation of all the complex phenomena was very proudly understood and hence appeals to non-material agencies (ghosts, sorcerers, demons and mythological beings) took the place of a causal scientific explanation. In order to explain why people believe in "unbelievable" things, one must first ascertain what the levels of belief are. Results from a United States survey, conducted by Schmeidler (1985) indicated that 51 percent of respondents reported an experience with ESP. A poll conducted in 1990, stated that 49 percent of the respondents believed in ESP, 38 percent believed in ghosts, and 33 percent believed in aliens (Newport & Strausberg 2001). Another study conducted in 1997, supports these findings and shows that over 50 percent of respondents indicated a belief in ghosts, while one-third responded they have had an experience with extrasensory perception (ESP) (Sparks, Glenn, Nelson, & Leigh, 1997). Another survey revealed that 59 percent of respondents were believers in the paranormal (Blackmore, 1997). Another study found that 49 percent of the participants believed that the extraterrestrial life exists, and 33 percent believed UFOs exist (Biasco & Nunn, 2000). Patry and Pelletier (2001) found that when participants were asked whether they personally knew someone who had allegedly seen a UFO, 24 percent answered yes,

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and 48 percent believed UFOs were real, as opposed to 35 percent who did not. Patry and Pelletier also found men were significantly more likely to believe in UFOs than females. Researchers have been searching for evidence that may distinguish believers of paranormal phenomena from non-believers. One area of great interest is the possible relationship between religiosity/ spirituality and belief in paranormal phenomena. Numerous researchers have found that religious preference (Fox 1992) and religious orientation (MacDonald 1992) are not correlated to reported paranormal experiences. A study in (2001) investigated the correlation between religiosity and belief in paranormal phenomena, researchers found that religiosity was not significantly correlated with belief in the paranormal (Beck & Miller, 2001). However, Beck & Miller found that experiences of negative affect over the preceding year were positively correlated with belief in the paranormal. (Sparks, et al).

Numerous researchers have looked toward demographics such as age, sex, and education level to explain differences in beliefs. Studies indicate that there is a significant difference in beliefs in the paranormal between genders ( Irwin,1993). Females have expressed stronger beliefs in the paranormal than males. Females were higher in their beliefs of ESP, and ghosts, while men had higher beliefs in UFOs and the Loch Ness Monster (Irwin, 1993). Blackmore (1997) found that there was a large significant sex difference between believers and non-believers. Blackmore found that over 70 percent of the female respondents were believers, compared to 48 percent of the males. The education level of participants is also considered when investigating belief systems. Henri Broch (2000) reports that a French opinion poll demonstrated a positive relationship between the respondent's education level and their belief in paranormal phenomena. The Princeton Research Association reported survey results that found no significant differences in beliefs in paranormal phenomena between high school dropouts and non-dropouts (Goode, 2002). A Yankelovick poll found no significant differences between education level and belief in UFOs (Goode, 2002). The Pew research center found that approximately 20-30 percent more of the least educated respondents reported beliefs in angels (Goode, 2002).

It is perhaps due to the widespread existence of these beliefs, that the investigation of the correlation of the paranormal and religious beliefs with personality has received considerable attention in the recent years. However, little attention has been paid to study the religious and paranormal phenomena together in relation to personality. Moreover, it has also been observed that most of the studies concerning paranormal beliefs, religiosity and the personality, conducted so far, were being carried out on the student populations. It, therefore, seems relevant here to study the personality correlates of religiosity and paranormal beliefs among the adults and the elderly among whom these two factors are expected to be highly endorsed. It would also be relevant to take into account certain other demographic variables, such as, age, socio-economic status and the level of education for a more informed research into the personality correlates of religiosity and paranormal beliefs.

## PURPOSES OF THE INVESTIGATION

The present study seeks to confirm the literature findings and to extend the boundaries of the previous researches by investigating the relationship between personality, paranormal beliefs and religiosity. In the light of the aims of the study and the previous researches reported, the following hypothesis will be tested:

### Hypothesis

1. There will be some relationship between paranormal beliefs and religious beliefs.
2. Socially marginal groups and those low on education will be more susceptible to paranormal beliefs.
3. Women will endorse greater global paranormal beliefs.
4. There will be a higher degree of endorsement of the paranormal beliefs among the adults and elderly.
5. The personality factors expected to correlate with paranormal beliefs are Neuroticism and extraversion.
6. The personality factors expected to correlate with religiosity are Agreeableness and Conscientiousness.
7. There will be a difference in the degree of belief in paranormal across different religions.

### Methodology

#### Participants

The participants of the present study comprised of 300 people; a hundred each from the three major religious groups' viz. Hindus, Muslims and Christians. The research population consisted of individuals, exclusively of Indian origin and belonged to the states of Uttarpradesh, Bihar and Rajasthan. The selection of the participants as per the requirements of the present study was done randomly from the three major religious groups. The age of the participants ranged from 15 to 71 years, with a mean age of 21.5 years. The participants were categorized into three age groups as, young, adults and elderly, those in the age group of 15- 19 years were categorized as young; those in the age group of 20-40 years were categorized as adults and finally those in the age group of 41 years and above were categorized as elderly. The entire group of participants of the present research was also divided in terms of gender (females and males). Further categorization of the participants was done on the basis of their socio-economic status. The selection of the participants for this particular category was done on the basis of their monthly income and level of education. The low socio-economic status group of participants comprised of individuals whose monthly income was very low (i.e. up to Rs.2000 per month) and they were either illiterate or very low on education (slum-dwellers, rickshaw-pullers or daily-waged employees). So far as the participants of a high socio-economic status are concerned, these included individuals who have had a decent monthly income (i.e. from Rs.10, 000 to 40,000 per month).

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The participants in this category were mostly, school teachers, doctors, bank-employees and University Professors and Lecturers.

### **Measures**

The following inventories were used to assess the constructs of paranormal beliefs, religious beliefs and personality.

#### **RELIGIOSITY SCALE (Decker and Broota, 1985)**

The Religiosity Scale (Decker and Broota, 1985) was used to measure the extent of an individual's dependency on the supernatural being adherence to the doctrines of one's faith. The final scale consisted of 44 items out of which 25 were positive and 19 were negative. The presence of both positively and negatively worded items is essential, for it avoids the tendency of the respondents to develop a response set, that might occur, were the items are only positive or only negative. The reliability of the final scale was established using the split-half technique. The items of the scale were split into two equivalent forms using the odd-even methods. The reliability co-efficient of the half tests was 0.91 (using Pearson's product moment). The obtained values were corrected for length using Spearman Brown formula and were 0.96. Thus, the reliability co-efficient for the religiosity scale was found to be 0.96 for an adult sample of subjects.

#### **REVISED PARANORMAL BELIEF SCALE (RBPS) (Tobayck, 1988)**

The Revised Paranormal Belief Scale (RPBS), (Tobayck, 1988) was used to measure paranormal beliefs. It is a 26 item self report scale, measuring the following seven forms of paranormal beliefs: traditional religious beliefs, Psi beliefs, witchcraft, superstition, spiritualism, extraordinary life forms and precognition. The extraordinary life forms subscale was modified slightly by replacing two items. Item 6, i.e., the abdominal snowman of Tibet exists, was replaced with: the UFOs exist. Also item 13, i.e., the Loch Ness monster of Scotland exists was replaced with: the extraterrestrial objects exist. Responses to each item are scored on a seven point Likert Scale. The Cronbach-Alpha coefficient for the Revised Paranormal Belief Scale is 0.91.

#### **NEO-five Factor Inventory (NEO-FFI) (Costa and McCrea, 1992)**

The NEO-FFI (Costa and McCrea, 1992) is a self report measure of personality features that make up an influential model of personality known as Five Factor Model (FFM). The FFM of personality has evolved over the last four decades (Digman, 1990) and has roots in both the lexical tradition (i.e. the analysis of trait adjectives found in English and other languages) as well as the factor analytic tradition in personality research. As operationalised by the NEO-PU-R, the five factors or domains are: Neuroticism, Extraversion, Openness to experience, Agreeableness and Conscientiousness. NEO-FFI is a 60 item version of form-S of the NEO-PI-R that provides a brief, comprehensive measure of the five domains of personality. It consists of five 12 item

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scales that measure each domain. Each of the items of the scale is scored on a five point Likert scale.

### **Procedure**

The set of questionnaire, which included the three scales measuring paranormal beliefs, religious beliefs and personality factors, was distributed to the participants using the opportunity method. Participants were informed that their responses would remain confidential and would be used exclusively for research purpose. They were also informed that they could choose not to complete the questionnaire, if they wished. In the case of the participants from socially marginal groups, individual items of each of the inventories were explained in their regional languages.

### **Ethics**

Because of the involvement of the human participants in the research process, the ethical principles for conducting research, as stated by the BPS (1992), were closely followed. It was made clear to all the participants both verbally and in writing that participation was entirely voluntary and that they were free to withdraw consent for their completed questionnaires at any time, and for whatever reason.

### **Data analysis**

The responses given by the participants of the present study were systematized and analyzed using appropriate statistical techniques. One way analysis of variance, t-test, product moment coefficient of correlation and multiple regression analysis were used to analyze the data.

## **RESULTS AND DISCUSSION**

For testing Hypothesis - 1: there will be significant relationship between paranormal beliefs and religious beliefs, Pearson product moment correlation is used as follows:

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**Table 1. Pearson Product Moment Correlation Coefficients between Paranormal beliefs including its subscales and Religious beliefs.**

Var 1 \ Var 2	TRB	PSI	WC	ST	SP	EOLF	PR	Total P
Religiosity	r =0.628** P=0.000 N=300	0.199** 0.001 300	0.294** 0.000 300	0.081 0.159 300	-0.088 0.127 300	-0.051 0.380 300	-0.056 0.335 300	0.236** 0.000 300

\*\* Correlation is significant at 0.01 level.

Note: TRB=Traditional religious beliefs, PSI=Psycho-kinesis, WC=Witchcraft, ST=Superstition, SP=Spiritualism, EOLF=Extra ordinary life forms, PR=Precognition, Total p=Global paranormal beliefs.

Table 1 shows that there is significant correlation between religious beliefs and paranormal beliefs at 0.01 level of significance ( $r=0.236$ ,  $p=0.000$ ). The table also shows that there is significant correlation between religious beliefs and TRB ( $r=0.682$ ,  $p=0.00$ ), Psi ( $r=0.199$ ,  $p=0.001$ ) and WC( $r=0.294$ ,  $p=0.000$ ) subscales of the paranormal belief scale.

For testing Hypothesis - 2: The personality factors expected to correlate with paranormal beliefs are Neuroticism and Extraversion, step-wise multiple regression analysis is used as follows:

**Table 2. Model summary of the prediction of paranormal beliefs from Personality factors.**

R	R- Square	Adjusted R-Square	Std.error of estimate
0.184	0.034	0.031	12.62424

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**Table 3. ANOVA table of a multiple regression analysis for the prediction of Paranormal beliefs from Personality factors.**

Variable	Sum of Squares		Df	Mean square	F	P
N	Regression	1670.248	1	1670.248	10.480	0.001
	Residual	47492.669	298	159.371		
	Total	49162.917	299			

**Table 4: Coefficients of regressions for the prediction of the Paranormal beliefs from Personality factors.**

Variable	B	Std.error	B	t	P
Constant	68.196	2.791		24.438	0.0005
N	0.389	0.120	0.184	3.237	0.001

Table 4 reports the results of a multiple regression analysis for the prediction of paranormal beliefs from the personality factors. A multiple regression analysis using the step-wise method was used to predict which one of the five personality subscales, if any are the significant predictors of paranormal beliefs. No significant model emerged for the predictor variables ( $F_{1, 298} = 10.480, p > 0.05$ ). the adjusted R square = 0.031. As reported in the table, N ( $\beta = 0.184, p < 0.001$ ). Therefore just one out of the five personality subscales is found to be a significant predictor of the paranormal beliefs. Extraversion, Openness, Agreeableness and Conscientiousness were not found to significantly predict paranormal beliefs.

For testing hypothesis - 3: The personality factors expected to correlate with religiosity are Agreeableness and Conscientiousness, step-wise multiple regression analysis is used as follows:

**Table 5. Model summary of the prediction of Religiosity from Personality factors.**

R	R-Square	R-Square Adjusted	Std. Error of estimate
0.376	0.141	0.133	20.81746



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**Table 6. ANOVA table of a multiple regression analysis for the prediction of Paranormal beliefs from Personality factors.**

Variable	Sum of Squares		df	Mean square	F	p
O, N &C	Regression	21100.397	3	7033.466 433.367	16.230	0.0005
	Residual	128276.6	296			
	Total	149377.0	299			

**Table 7: Coefficients of regressions for the prediction of the Paranormal beliefs from Personality factors.**

Variable	B	Std.error	B	t	P
Constant	157.139	10.967		14.329	0.0005
O	-1.513	0.277	-0.294	-5.464	0.0005
N	0.855	0.202	0.233	4.241	0.0005
C	0.500	0.213	0.128	2.343	0.020

Table -7 reports the results of a multiple regression analysis for the prediction of the religious beliefs from the personality factors. A multiple regression analysis using the step-wise method was used to predict which one of the five personality subscales, if any are the significant predictors of religiosity. No significant model emerged for the predictor variables ( $F_{3,296} = 16.230, p > 0.05$ ). the adjusted R square = 0.133. As reported in the table, O ( $\beta = -0.294, P < 0.001$ ), N ( $\beta = 0.233, P < 0.001$ ) and C ( $\beta = 0.128, P < 0.001$ ). Therefore just three out of the five personality subscales are significant predictor of religiosity. Extraversion and Agreeableness were not found to significantly predict religious beliefs. Therefore just three out of the five Personality subscales were found to be significant predictors of the religious beliefs. The table also reveals that the  $\beta$  value for O (i.e. openness) is negative which means that there exists a significant inverse relation between the two constructs; i.e. high scores on openness subscale indicate a decrease in the religiosity score.

For testing Hypothesis - 4: There will be difference in the degree of endorsement of paranormal beliefs across different religions, one-way analysis of variance is used as follows:

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**Table 8: Descriptive statistics of the individuals of three religious groups on Paranormal beliefs and its subscales.**

<b>Paranormal beliefs</b>	<b>Groups</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Std.error of mean</b>
Traditional religious beliefs	Muslim	100	17.3700	2.49304	0.24930
	Hindu	100	15.4900	2.99324	0.29932
	Christian	100	16.4700	3.14773	0.31477
	Total	300	16.4433	2.98269	0.17221
Psi	Muslim	100	11.7500	3.02306	0.30231
	Hindu	100	12.3300	3.30917	0.33092
	Christian	100	12.5000	2.91461	0.29146
	Total	300	12.1933	3.09319	0.17859
Witchcraft	Muslim	100	11.8900	3.74946	0.37495
	Hindu	100	10.2500	3.49133	0.34913
	Christian	100	11.3900	3.27493	0.32749
	Total	300	11.1767	3.56574	0.20587
Superstition	Muslim	100	6.1300	1.93665	0.19366
	Hindu	100	6.4400	2.67921	0.26792
	Christian	100	6.2700	2.13605	0.21361
	Total	300	6.2800	2.26835	0.13096
Spiritualism	Muslim	100	9.9200	3.57793	0.35779
	Hindu	100	11.0100	3.27369	0.32737
	Christian	100	10.6300	3.16437	0.31644
	Total	300	10.5200	3.36263	0.19414
Extraordinary life forms	Muslim	100	8.9500	3.57990	0.35799
	Hindu	100	10.1600	3.72467	0.37247
	Christian	100	9.7500	3.59398	0.35940
	Total	300	9.6200	3.65607	0.21108
Precognition	Muslim	100	9.7800	3.47162	0.34716
	Hindu	100	11.8200	4.17395	0.41739
	Christian	100	10.4500	3.66081	0.36608
	Total	300	10.6833	3.86257	0.22301
Total paranormal beliefs	Muslim	100	75.7900	11.99435	1.19944
	Hindu	100	77.5000	14.46591	1.44659
	Christian	100	77.4600	11.89722	1.18972
	Total	300	76.9167	12.82281	0.74033

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**Table 9. Summary of one-way analysis of variance for paranormal beliefs and its subscales with regard to religion. Number of groups =3.**

Paranormal beliefs	Sources of variance	Sum of squares	df	Mean square	F	p
Traditional religious beliefs	Between groups	176.827	2	88.413	10.575	0.0005
	Within groups	2483.210	297	8.361		
	Total	2660.037	299			
Psi	Between groups	30.927	2	15.463	1.623	0.199
	Within groups	2829.860	297	9.528		
	Total	2860.787	299			
Witchcraft	Between groups	141.307	2	70.653	5.733	0.004
	Within groups	3660.330	297	12.324		
	Total	3801.637	299			
Superstition	Between groups	4.820	2	2.410	0.467	0.628
	Within groups	1533.660	297	5.164		
	Total	1538.480	299			
Spiritualism	Between groups	61.220	2	30.610	2.739	0.066
	Within groups	3319.660	297	11.177		
	Total	3380.880	299			
Extra-ordinary life forms	Between groups	75.740	2	37.870	2.869	0.058
	Within groups	3920.940	297	13.202		
	Total	3996.680	299			
Precognition	Between groups	216.247	2	108.123	7.565	0.001
	Within groups	4244.670	297	14.292		
	Total	4460.917	299			
Total paranormal beliefs	Between groups	190.487	2	95.243	0.578	0.562
	Within groups	48972.430	297	164.890		
	Total	49162.917	299			

As seen in table - 9, there is significant difference between the mean scores on TRB at least in two groups with regard to religiosity, ( $F_{2,297}=10.575, p< 0.01$ ). Also, there is significant difference between at least two groups on WC ( $F_{2,297} = 5.733, p<0.01$ ). The table also reports significant difference on PR at least between two groups with regard to religiosity ( $F_{2,297}=7.565, p <0.01$ ).

For the clarification of these differences Tukey's Post-Hoc is used as follows:

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**Table 10: Tukey's Post-hoc in (TRB) with regard to Religiosity.**

Group(i)	Group(j)	Mean diff. (i-j)	Std.error	p
Muslim	Hindu	1.88	0.409	0.0005

As seen in table- 10, Muslim subjects have higher scores on (TRB) in comparison with Hindu subjects.

**Table 11: Tukey's Post-hoc in (WC) with regard to Religiosity.**

Group(i)	Group(j)	Mean diff. (i-j)	Std.error	p
Muslim	Hindu	1.64	0.496	0.003

As seen in table- 11, Muslim subjects have higher scores on (WC) in comparison with Hindu subjects.

**Table 12: Tukey's Post-hoc in (PR) with regard to Religiosity.**

Group(i)	Group(j)	Mean diff. (i-j)	Std.error	p
Muslim	Hindu	-2.04	0.535	0.0005

As seen in table-12, Hindu subjects have higher scores on (PR) in comparison with Muslim subjects.

For testing Hypothesis-5: Socially marginal groups will be more susceptible to paranormal beliefs, independent t-test is used as follows:

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**Table 13 Descriptive statistics of the low and high socio-economic status individuals with regard to Paranormal belief and its subscales.**

<b>Paranormal Beliefs</b>	<b>SES</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Std.error of mean</b>
Traditional religious beliefs (TRB)	Low	37	13.7838	3.11033	0.51134
	High	263	11.9696	3.03023	0.18685
Psycho kinesis (Psi)	Low	37	17.2432	1.87684	0.30855
	High	263	16.3308	3.09285	0.19071
Witchcraft (WC)	Low	37	12.5946	3.27838	0.53896
	High	263	10.9772	3.56502	0.21983
ssSuperstition (ST)	Low	37	8.1892	2.92345	0.48061
	High	263	6.0114	2.02745	0.12502
Spiritualism (SP)	Low	37	12.6757	3.39161	0.55758
	High	263	10.2167	3.25192	0.20052
Extraordinary life forms (EOLF)	Low	37	10.1351	3.62217	0.59548
	High	263	9.5475	3.66183	0.22580
Precognition (PR)	Low	37	13.5676	3.56324	0.58579
	High	263	10.2776	3.73386	0.23024
Total paranormal beliefs ( Total P)	Low	37	88.1892	13.12512	2.15776
	High	263	75.3308	11.97934	0.73868

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**Table- 14: Independent t-test showing a comparison between the subjects of high and low Socio-economic status on Paranormal beliefs.**

Paranormal Beliefs	t	df	P	Mean diff.	Std.error of diff.
Traditional religious beliefs	1.748	298	0.081	0.91244	0.52192
Psi	3.399	298	0.001	1.81420	0.53377
Witchcraft	2.608	298	0.010	1.61741	0.62009
Superstition	4.385	298	0.0005	2.17778	0.49661
Spiritualism	4.150	298	0.0005	2.45895	0.59254
Extraordinary life forms	0.915	298	0.361	0.58761	0.64212
Precognition	5.227	298	0.0005	3.29000	0.62942
Total P	5.638	298	0.0005	12.85839	2.28069

Table- 14 shows that subjects of a low socioeconomic status have greater scores on Psi in comparison with their high socioeconomic status counterparts with 99% confidence,  $t(298) = 3.399$ ,  $p < 0.01$ . Also, subjects of a low socioeconomic status have scored higher than those of a high socioeconomic status on Witchcraft,  $t(298) = 2.608$ ,  $p \leq 0.01$ . Hence there is significant difference between the two groups. The table also shows that there is significant difference between the two groups of subjects on Superstition subscale,  $t(298) = 4.385$ ,  $p < 0.01$ . Again, low socioeconomic status subjects have scored significantly higher than the high socioeconomic status subjects with 99% confidence on the Spiritualism,  $t = 4.150(298)$ ,  $p < 0.001$  and Precognition subscale,  $t(298) = 5.227$ ,  $p < 0.001$  as also the total paranormal belief scale,  $t(298) = 5.638$ ,  $p < 0.01$ . The table also reports significant differences between the two groups of subjects with 95% confidence on the traditional religious belief subscale. However, it is seen that there is no significant difference between the two groups with regard to the extraordinary life forms subscale,  $t(298) = 0.915$ ,  $p > 0.05$ .

For examining Hypothesis-6: Women will endorse greater global paranormal beliefs than men, independent t-test is used as follows:

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**Table -15: Descriptive statistics of the males and females on Paranormal belief and its subscales.**

<b>Paranormal Beliefs</b>	<b>Gender</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Std.error of mean</b>
Traditional religious beliefs (TRB)	Female	150	16.4733	2.93257	0.23944
	Male	150	16.4133	3.04152	0.24834
Psycho kinesis (Psi)	Female	150	12.4000	3.03005	0.25733
	Male	150	11.9867	3.15162	0.24740
Witchcraft (WC)	Female	150	11.6733	3.69018	0.30130
	Male	150	10.6800	3.37643	0.27568
Superstition (ST)	Female	150	6.4933	2.43230	0.16966
	Male	150	6.0667	2.07790	0.19860
Spiritualism (SP)	Female	150	10.9533	3.41598	0.26638
	Male	150	10.0867	3.26243	0.27891
Extraordinary life forms (EOLF)	Female	150	9.9867	3.53123	0.28832
	Male	150	9.2533	3.75274	0.30641
Precognition (PR)	Female	150	10.6933	3.70913	0.30285
	Male	150	10.6733	4.02258	0.32844
Total paranormal beliefs (Total P)	Female	150	76.9667	12.85824	1.04987
	Male	150	76.8667	12.83016	1.04758

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**Table -16: Independent t-test showing comparison between males and females on Paranormal beliefs.**

Paranormal beliefs	t	df	P	Mean diff.	Std.error of diff.
Traditional religious beliefs (TRB)	0.174	298	0.862	0.06000	0.34497
Psycho kinesis (Psi)	1.158	298	0.248	0.41333	0.35697
Witchcraft (WC)	2.432	298	0.016	0.99222	0.40839
Superstition (ST)	1.633	298	0.103	0.42667	0.26120
Spiritualism (SP)	2.247	298	0.025	0.86667	0.38567
Extraordinary life forms (EOLF)	1.743	298	0.082	0.73333	0.42073
Precognition (PR)	0.045	298	0.964	0.02000	0.44676
Total paranormal beliefs (Total P)	0.067	298	0.946	0.10000	1.48312

Table 16 shows that females have greater scores on witchcraft in comparison to males with 99% confidence,  $t(298) = 2.432, p \leq 0.01$ . Also, on the spiritualism subscales females have scored higher than the males,  $t(298) = 2.247, p < 0.05$ . Hence there is significant difference between the two groups. The table also shows that there is no significant difference between the two groups of subjects on TRB,  $t(298) = 0.174, p > 0.01$ ; ST,  $t(298) = 1.633, p > 0.01$ ; Psi,  $t(298) = 1.158, p > 0.01$ ; EOLF,  $t(298) = 1.743, p > 0.01$  and PR subscales  $t(298) = 0.045, p > 0.01$ .

For testing Hypothesis-7: There will be a higher degree of endorsement of the paranormal beliefs among the adults and elderly, One-way ANOVA is used as follows:



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**Table- 17: Descriptive statistics of the three age groups of individuals on Paranormal beliefs.**

<b>Paranormal beliefs</b>	<b>Groups</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Std.error of mean</b>
Traditional religious beliefs	Young	101	16.4059	2.94339	0.29288
	Adult	133	16.6015	3.05490	0.26489
	Elderly	66	16.1818	2.91895	0.35930
	Total	300	16.4433	2.98269	0.17221
Psi	Young	101	12.1683	2.82513	0.28111
	Adult	133	11.8120	3.03802	0.26343
	Elderly	66	13.0000	3.46854	0.42695
	Total	300	12.1933	3.09319	0.17859
Witchcraft	Young	101	10.8020	2.93946	0.29249
	Adult	133	11.5489	3.84248	0.33319
	Elderly	66	11.0000	3.83105	0.47157
	Total	300	11.1767	3.56574	0.20587
Superstition	Young	101	6.2277	2.27983	0.22685
	Adult	133	6.1429	2.23316	0.19364
	Elderly	66	6.6364	2.31807	0.28533
	Total	300	6.2800	2.26835	0.13096
Spiritualism	Young	101	11.0594	3.66011	0.36419
	Adult	133	10.1805	3.41084	0.29576
	Elderly	66	10.3788	2.65889	0.32729
	Total	300	10.5200	3.36263	0.19414
Extraordinary life forms	Young	101	9.0396	3.49834	0.34810
	Adult	133	9.7218	3.82051	0.33128
	Elderly	66	10.3030	3.46397	0.42638
	Total	300	9.6200	3.65607	0.21108
Precognition	Young	101	10.3465	4.30914	0.42878
	Adult	133	10.4511	3.68549	0.31957
	Elderly	66	11.6667	3.34817	0.41213
	Total	300	10.6833	3.86257	0.22301
Total paranormal beliefs	Young	101	76.0495	11.65965	1.16018
	Adult	133	76.4586	13.42968	1.16450
	Elderly	66	79.1667	13.19858	1.62463
	Total	300	76.9167	12.82281	0.74033

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**Table- 18. Summary of One-way analysis of variance for Paranormal beliefs and its subscales with regard to age. Number of groups =3.**

<b>Paranormal beliefs</b>	<b>Sources of variance</b>	<b>Sum of squares</b>	<b>df</b>	<b>Mean square</b>	<b>F</b>	<b>p</b>
Traditional religious beliefs	Between groups	7.982	2	3.991	0.447	0.640
	Within groups	2652.054	297	8.929		
	Total	2660.037	299			
Psi	Between groups	62.347	2	31.174	3.308	0.038
	Within groups	2798.439	297	9.422		
	Total	2860.787	299			
Witchcraft	Between groups	34.665	2	17.332	1.367	0.257
	Within groups	3766.972	297	12.683		
	Total	3801.637	299			
Superstition	Between groups	11.159	2	5.580	1.085	0.339
	Within groups	1527.321	297	5.142		
	Total	1538.480	299			
Spiritualism	Between groups	46.037	2	23.018	2.050	0.131
	Within groups	3334.843	297	11.228		
	Total	3380.880	299			
Extraordinary life forms	Between groups	66.192	2	33.096	2.501	0.084
	Within groups	3930.488	297	13.234		
	Total	3996.680	299			
Precognition	Between groups	82.446	2	41.223	2.796	0.063
	Within groups	4378.470	297	14.742		
	Total	4460.917	299			
Total paranormal beliefs	Between groups	437.975	2	218.987	1.335	0.265
	Within groups	48724.942	297	164.057		
	Total	49162.917	299			

As seen in the Table 18, on the Psi subscale ( $F_{2,297} = 3.308, p < 0.05$ ) there is significant difference between the mean scores of at least two groups on Psi.

For the clarification of differences on this subscale, Tukey's Post hoc is used as follows:

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**Table -19: Tukey's Post hoc on Psi subscale.**

Group (i)	Group (j)	Mean.diff ( i- j)	Std.error	p
Elderly	Adult	1.188	0.462	0.029

Table -19 reports that the elderly subjects have greater scores on Psi subscale in comparison to adult subjects with 95% confidence ( $p < 0.05$ ).

### DISCUSSION

The present research investigated the personality correlates of religiosity and paranormal beliefs. The findings proved heterogeneous with a number of significant relations emerging. Each finding and possible implications is discussed in the following sections.

The researcher sought to investigate the relationship between the paranormal beliefs and religiosity. As seen in (table1), significant correlation was found between the two constructs. The findings of the present study suggest that there was a significant positive correlation between religiosity and paranormal beliefs as well as between religiosity and the traditional religious beliefs, psi and witchcraft subscales of the paranormal beliefs scale. The findings of the present research also report a negative correlation between religious beliefs and the spiritualism, extraordinary-life-forms and precognition subscales of the paranormal beliefs scale. The findings of the present research provide supporting evidence for the relationship between the two constructs that was initially suggested by Goode (2000). The results are also consistent with the findings of yet another study which reported a negative correlation between religiosity and beliefs in telepathy, precognition and psi (Hillstrom and Strachan, 2000).

The findings of the present research suggest that Neuroticism is the only personality factor significantly predicting paranormal beliefs (see table 4). These findings are therefore consistent with the previous researches (Thalbourne, Dunber and Delin, 1995). The results were however inconsistent with the research findings of (Lester and Monagham, 1995; Willging and Lester, 1997), which reported that Neuroticism did not correlate with paranormal beliefs. Also, the findings of the present research did not reveal any correlation between Extraversion and paranormal beliefs, which contrasts the research findings of (Thalbourne, 1981; Eysenck, 1967; Thalbourne and Haraldson, 1980). The results of the present research were however consistent with the findings of (Lester et al., 1987; Windholz and Diamant, 1974), which reported extraversion to be a correlate of paranormal beliefs.

The results of the present study further revealed that Neuroticism, Openness and Conscientiousness were significant predictors of religiosity (see table 7). These findings provide partial supportive evidence to the findings of (Francis, 1992a, 1992b, 1993; Francis and Katz, 1992; Francis and Pearson, 1993; Lewis and Joseph, 1994; Lewis and Maltby, 1995, 1996;

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Maltby, 1999a, 1999b; Saroglou, 2002) which reported Agreeableness and Conscientiousness to be significant predictors of religiosity.

The present study sought to find out, if there are any differences in the degree of endorsement of the paranormal beliefs across different religions. The findings suggest that Muslims scored higher on the traditional religious beliefs subscale in comparison with the Hindus (see table 10). On the other hand, among the Hindus a higher degree of endorsement of witch-craft was observed (see table 11). However, so far as the Christians are concerned no significant differences were observed either on global paranormal beliefs or any of the subscales of the paranormal beliefs. The investigator did not find any previous researches being conducted on the personality correlates of religiosity and paranormal beliefs across three religious groups. Hence the present research is the first substantial exploratory investigation of its type.

The present research also sought to find out, whether the socially marginal groups were more susceptible to paranormal beliefs. The results revealed that the subjects of a low socio-economic status are more susceptible to paranormal beliefs. They scored higher on psi, witchcraft, superstition, spiritualism, precognition as well as the total- paranormal beliefs scale (see table 14). These results therefore provide supporting evidence for the social-marginality hypothesis, according to which people more susceptible to paranormal beliefs are members of socially marginal groups, such as the poorly educated or the un-employed that possess characteristics or roles that rank low among dominant social values (Bainbridge, 1978; & Wuthnow, 1976). The deprivation and alienation associated with marginal status in the society is held to encourage such appeal to magical and religious beliefs, presumably because these beliefs bring various compensations to the lives of their adherents.

A large body of previous researches has reported that the endorsement of most, but certainly not all paranormal beliefs is stronger among women than men (Irwin, 1985; McGarry and Newberry; 1981). The results of the present study revealed that women scored higher than men on the witch-craft and spiritualism (see table 16). These results were inconsistent with the findings of Tobacyk and Pirttila- Backman (1992), who reported the belief in witch-craft to be higher among men than women. The present study reported no gender differences on global paranormal beliefs as well as traditional religious beliefs, superstition, psi, extraordinary life forms and precognition subscales (see table 16). Hence the results of the present study were inconsistent with the previous researches, suggesting women to score higher on global paranormal beliefs (Clarke, 1991; Rice, 2003; Tobayck and Milford, 1983; Wolfradt, 1997).

Gender differences may however be attributed to cultural differences. It has been found, via “top-down purification”, that the revised paranormal belief scale can yield systematically biased results with respect to gender differences in paranormal beliefs.

The present study also sought to find out, if there was any difference in the degree of endorsement of the paranormal beliefs across different age-groups. The results reported no significant differences between the three groups of subjects either on the global paranormal beliefs or the traditional religious beliefs, witch-craft, superstition, spiritualism, extraordinary life

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forms and precognition subscales of the paranormal beliefs scale (see table 18). However significant differences were found between the elderly and the adult subjects on the psi subscale, with elderly subjects scoring higher than the adults (see table 19). Hence the findings of the present research were not supportive of the earlier researches which suggested that most of the paranormal beliefs, with the major exception of traditional religious beliefs appear to be stronger in adults than in elderly people (Emmons and Sobal, 1981). So far as the young participants are concerned no significant differences were found either on the global paranormal beliefs or on any of the seven subscales of the paranormal beliefs.

## CONCLUSIONS

The present research investigation of the personality correlates of religiosity and paranormal beliefs showed that paranormal beliefs and religiosity are indeed associated, confirming previous researches that suggested some kind of a relationship between the two (Goode, 2000; Haraldsson, 1981). The results of the present study confirmed the hypothesis based on previous studies, stating that Neuroticism is correlated with paranormal beliefs (Thalbourne, Dunbar and Delin, 1995). However, this hypothesis was partly confirmed, the findings could not confirm the other half of this hypothesis that Extraversion is correlated to paranormal beliefs (Thalbourne, 1981; Eysenck, 1967; Thalbourne and Haraldsson, 1980). The present study reported that only Neuroticism is correlated with paranormal beliefs. With regard to the religiosity, the personality factors, Neuroticism, Openness and conscientiousness were found to be significantly correlated to religiosity. These findings extended previous studies indicating, Agreeableness and Conscientiousness to be associated with religiosity (Francis, 1992a, 1992b, 1993; Francis and Katz, 1992; Francis and Pearson, 1993; Lewis and Joseph, 1994; Lewis and Maltby, 1995, 1996; Maltby, 1999a, 1999b; Saroglou, 2002). With regards to the different religious groups, the results of the present study showed that there are higher endorsements of traditional religious beliefs and witch-craft among the Muslims, while as the Hindus endorse a higher degree of precognition. These findings were the results of the first exploratory study of its type; hence further research is required to confirm the findings of the present research. The results also showed that the individuals of low socio-economic status were highly susceptible to paranormal beliefs. The results of the present research therefore provided supporting evidence for the social-marginality hypothesis, according to which people more susceptible to paranormal beliefs are members of socially marginal groups, such as the poorly educated or the un-employed that possess characteristics or roles that rank low among dominant social values (Bainbridge, 1978) and Wuthnow, 1976). With regard to gender significant differences were found on witch-craft and spiritualism. However, no significant differences were found on the global paranormal beliefs, thus the results of the present research provide partial support to the findings of the previous researches that showed women to endorse greater global paranormal beliefs (Clark, 1991; Rice, 2003; Tobayck and Milford, 1983; Wolfradt, 1997). With regard to age the results of the present research revealed there were significant differences between the adults and the elderly on the psi subscale, the elderly scored higher than the adults. These findings were not supportive of the previous researches which suggested that most of the paranormal beliefs, with

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the major exception of the traditional religious beliefs appear to be stronger in adults than the elderly people (Emmons and Sobal, 1981).

### SUGGESTIONS FOR FUTURE RESEARCH

The present study was conducted exclusively on Indians; although the sample was fairly representative of the demographic areas sampled, the racial homogeneity of the sample limited the generalizability of the findings to other populations. Cultural differences are also seen to influence the results by a great degree; hence it would be better if this study is conducted in a cross-cultural context. There are also certain doubts regarding the dimensionality of the Revised Paranormal Beliefs Scale; non linear research methods must therefore be used to capture the wholeness of the paranormal phenomena. It would also be relevant to take into account the phenomenon of spirituality for a more informed research. Finally, all measures employed the self-report method, as is characteristic of this research (Kane & Kane, 2000). A multi-method approach would limit the shortcomings associated with any one assessment method, and could be considered for future research.

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