The relationships among paranormal beliefs, locus of control and psychopathology in a Turkish college sample

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Abstract

The relationships among paranormal beliefs, locus of control and psychiatric symptomatology were investigated in a Turkish college sample of 350 participants (233 females and 117 males). The data were collected with the Turkish version of Tobacyk’s revised Paranormal Belief Scale (PBS-R), Rotter’s Internal-External Locus of Control Scale (IELOC), and Symptom Check List-90-Revised (SCL-90-R). Small but significant positive correlations between the global scores of PBS-R and IELOC Scale ($r = 0.31, P < 0.0001$), PBS-R and SCL-90-R ($r = 0.14, P < 0.01$), IELOC Scale and SCL-90-R ($r = 0.31, P < 0.0001$) were found. PBS-R subscales predicted locus of control better than psychopathology in general. Correlations among the subscales of PBS-R and IELOC Scale were also reported. Females were significantly higher in Superstition, and males in Extraordinary Life Forms subscale. The discussion focused on the role of paranormal beliefs as a personality system that brings a kind of control feeling, depending on insufficient internal control perceptions, with a cost of psychopathology. © 1999 Elsevier Science Ltd. All rights reserved.

Key words: Paranormal beliefs; Locus of control; Psychopathology; Gender differences; College students; Turkey

1. Introduction

Although scientists are very sceptical about reputed ‘paranormal events’ (e.g. psychokinesis, clairvoyance, spiritualism) or even strongly rejected the existence of them and interpreted these experiences by known psychological or statistical principles (Brugger, Landis & Regard, 1990; Blackmore, 1990; Royalty, 1995; Schienle, Vaitl & Stark, 1996; Snyder, 1997), there are a considerable number of people all around the world who believe those ‘paranormal phenomena’. For example, a Gallup Poll in U.S.A., conducted in 1990, revealed that more than half of Americans

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believe in the Devil, 49% of them believe in extrasensory perception (ESP) and about 25% of them believe in ghosts, clairvoyance and astrology (Gallup & Newport, 1991).

The term paranormal is used to describe phenomena which, if authentic, violate basic limiting principles of science (Broad, 1949; Tobacyk, 1995), but there is a controversy (Lawrence, 1995) about classifying traditional religious beliefs and superstition as paranormal despite some strong empirical results (Thalbourne, 1997). However, many of the ostensible phenomena of traditional religion (e.g. miracles, resurrection, souls, survival after physical death) violate basic limiting principles of science and therefore fit the above stated definition of paranormality (Tobacyk & Pirttila-Backman, 1992). Indeed, as Tobacyk (1995) put it, paranormal beliefs (including traditional religious and superstitious beliefs) “are a central personality dynamism that energises and organises individual and collective behavior”... which “provides persons and societies with meaning in life, with perceived control, and with resources for adjustment (therefore) deserve serious study” (p.145). Although the real paranormality of those experiences central to those beliefs has been controversial (Eysenck & Sargent, 1982), by this line of reasoning, paranormal beliefs were studied intensively, for the correlates with personality and sociodemographic variables, for the last two decades (Tobacyk & Milford, 1983; Tobacyk, Nagot & Miller, 1988; Svensen, White & Caird, 1992; Thalbourne & French, 1995; Wolfradt, 1997).

1.1. Paranormal beliefs and personality

Special interests were paid to the relationship between paranormal beliefs and locus of control (Rotter, 1966) and between paranormal beliefs and psychopathology (Davies & Kirkby, 1985; Tobacyk et al., 1988; Thalbourne & French, 1995; Wolfradt, 1997).

The connection between paranormal beliefs and feelings of control, especially on uncontrollable events such as disasters, diseases and death, were proposed by the well-known anthropologist Malinowski about a half century ago (Malinowski, 1948). He proposed that those beliefs serve as a kind of illusion of control (Langer, 1975). Magical (primitive) thinking or the belief in phenomenalistic causality behind those illusional control feelings, which is a characteristic of children does not disappear totally in adulthood, though it tends to with modern education (Subbotsky, 1997). Early research had shown that there was a relationship between more external locus of control and greater belief in paranormal phenomena (Scheidt, 1973; Tobacyk & Milford, 1983). On the other hand, in uninvolved and uncommitted college students, greater belief in the paranormal was related to external locus of control, whereas in actively involved students (such as the readers of psychic books) greater belief in the paranormal was related to internal locus of control (McGarry & Newberry, 1981). It was suggested that involved believers might have adopted a paranormal belief system as an alternative or perhaps an adjunct mode of attaining mastery and feelings of competence over their environments (McGarry & Newberry, 1981). Moreover, global measurements of locus of control and paranormal beliefs are erroneous, because while superstition and spiritualism (believing in ghosts) are forms of paranormal beliefs that imply a belief in fate and lack of control (e.g. if you break a mirror, you will have bad luck), in contrast, psi belief (telepathy, clairvoyance, psychokinesis) implies that the world can be changed by one’s own will (e.g. a person’s thought can influence the movement of a physical object as in the belief of psychokinesis). Therefore, superstition and spiritualism should correlate positively, and psi belief should correlate negatively with external locus of control (Wolfradt, 1997).
Indeed, further research had found that there were significant relationships between externality in personal and sociopolitical control with belief in religion, superstitions and spiritualism, and between internality in personal and interpersonal control with belief in witchcraft and psi (Davies & Kirkby, 1985) in terms of spheres of control (Paulhus, 1983). Similarly, Tobacyk et al., 1988 (1988) had found that there were significant correlations between greater personal efficacy control and less belief in superstition and witchcraft, and between greater interpersonal control and less belief in superstition. Considering those differential relationships, the authors stressed the utility of multidimensional conceptualisation of the relationships between paranormal beliefs and locus of control (Tobacyk et al., 1988).

Another important correlate of paranormal beliefs is psychopathology. It is a well-known fact that psychological maladjustment was seen as witchcraft by some medieval Europeans. Even today psychological maladjustment was explained by factors of a magico-religious nature among less educated Europeans (Vlachos, Beratis & Hartocollis, 1997; Ozden, Vedi, Yargiç & Kaya, 1997). Almost a century ago, Freud saw paranormal beliefs including religious beliefs themselves as psychopathological (Freud, 1912–13; 1927) and called them ‘neurosis’ or ‘paranoia’ stemming from omnipotent (or magical) thinking characteristic to childhood. Magical thinking, as seen in psychokinesis, is a form of paranormal belief, that the person sees himself as capable of many things in contrast to reality (Tobacyk & Wilkinson, 1990). Magical thinking is also among the defined symptoms of some psychiatric disorders like schizotypal personality disorder in DSM-IV (American Psychiatric Association, 1994) and among the mechanisms of some other disorders like obsessive–compulsive disorder, such that the major characteristic of compulsive rituals is magical thinking (e.g. “If I touch the door three times, then my child would not die in an accident today”).

Psychometric evidence has also been obtained showing a correlation between psychosis and magical thinking. It is found that those who scored highest on a magical thinking scale showed a predisposition to psychosis (Eckblad & Chapman, 1983). Schizophrenic patients scored higher on a magical thinking scale than non-schizophrenic psychiatric patients or normal subjects (George & Neufeld, 1987). Subjects believing in extraordinary phenomena scored higher on the Schizophrenia subscale of the MMPI than non-believers (Windholz & Diamant, 1974). Paranormal beliefs were significantly and positively correlated with schizotypy (Thalbourne, 1994; Chequers, Joseph & Diduca, 1997), and with manic-depressive experiences (Thalbourne & French, 1995).

Originally, empirical findings related to the connection between paranormal beliefs and psychopathology rooted to Maller and Lundeen’s (1933) study which found a positive relation between superstition and emotional maladjustment. Further studies had found some contradictory results on the relationship between paranormal beliefs and neurotic like experiences. For example, Thalbourne, Dunbar and Delin (1995) had found a significant positive relationship between paranormal beliefs and neuroticism, whereas other researchers (Svensen et al., 1992; Lester & Monaghan, 1995; Willging & Lester, 1997) had not found such a significant relationship. Similarly, anxiety showed a close relation with paranormal beliefs in some studies (Okebukola, 1986; Wagner & Ratzteburg, 1987), and did not in some other studies (Tobacyk, 1982). However, a recent study (Wolfradt, 1997), conducted in Germany, has shown significant relationships among paranormal beliefs, trait anxiety and dissociative experiences. The connection between dissociation and paranormal beliefs had also been reported in some earlier studies (Richards, 1991; Irwin, 1994; Pekala, Kumar & Marcano, 1995), and those beliefs were seen as serving the same function as in dissociative experiences, namely distancing from the reality as a defence mechanism (Wolfradt, 1997). Similarly,
fantasy proneness was also correlated with paranormal beliefs probably serving similar functions (Irwin, 1990).

There are other correlates of paranormal beliefs that might be related to psychopathology. Significant positive correlations were obtained between paranormal beliefs and irrational beliefs, dogmatism, sensation seeking (Tobacyk & Milford, 1983; Roig, Bridges, Renner & Jackson, 1998), alienation, anomie (Tobacyk, 1985), and excessive intentionality (Tobacyk & Milford, 1984). Paranormal beliefs were also negatively correlated with social interest (Tobacyk, 1983). On the contrary, there were non-significant correlations between actual self vs ideal self discrepancy scores and the dimensions of paranormal beliefs except traditional religious belief (Tobacyk & Milford, 1983). On the other hand, those two major correlates of paranormal beliefs, namely, locus of control and psychopathology were already found to have significant positive correlations with each other (Hale & Cochran, 1987; Dag, 1992; Gomez, 1998).

1.2. Gender and age differences

Paranormal beliefs are common in general but there are some age and gender differences in those beliefs. They are higher among women than men, and it was supposed that the difference is due to women’s richer fantasy life (Blackmore, 1994). Some other studies also found similar differences between genders (Clarke, 1991; Irwin, 1993; Wolfradt, 1997). On the other hand, in terms of age, college students were found to have more paranormal beliefs than high school students (Tobacyk, Miller & Jones, 1984) and than older people except traditional religious belief (Tobacyk, Pritchett & Mitchell, 1988).

1.3. Paranormal beliefs and cross-cultural research

There are two major cross-cultural researches on paranormal beliefs in the literature (Tobacyk & Pirttila-Backman, 1992; Tobacyk & Tobacyk, 1992). Tobacyk and Pirttila-Backman (1992) found that Americans reported greater belief in Traditional Religious Belief, Superstition, Witchcraft, and Extraordinary Life Forms on related subscales than Finns, and paranormal beliefs showed a stronger relationship with measures of personality adjustment for the Finns than for the Americans. On the other hand, Tobacyk and Tobacyk (1992) found that both Poles and Americans reported high levels of traditional religious belief, as well as disbelief in superstition, spiritualism, and witchcraft. Haraldsson and Houtkooper (1996) found that Icelandic subjects believe all dimensions of paranormal beliefs except spiritualism less than Americans, based on Tobacyk and Milford’s (1983) data.

1.4. The aim of the study

In this frame of reference, the aim of the present study was to investigate the multiple relationships among paranormal beliefs, locus of control and psychiatric symptomatology in a Turkish college sample. This sample was culturally different from the samples of some earlier studies conducted in the U.S.A. (Tobacyk & Milford, 1983), in Poland (Tobacyk & Tobacyk, 1992), in Finland (Tobacyk & Pirttila-Backman, 1992), in Iceland (Haraldsson & Houtkooper, 1996), in Australia (Grimmer & White, 1990; Svensen et al., 1992), in Germany (Wolfradt, 1997), and in
Generally it was expected that there would be positive correlations among the global measures of paranormal beliefs, locus of control and psychiatric symptomatology. Also an additional aim of the study was to examine the reliabilities and factorial validities of the Turkish versions of Tobacyk’s revised Paranormal Belief Scale (PBS-R), and Rotter’s Internal-External Locus of Control Scale (IELOC), measuring paranormal beliefs and locus of control respectively, as a prerequisite for the major aim of the study. Gender differences on the related measures were also examined.

2. Method

2.1. Participants

Participants were 350 students (233 females and 117 males) from eight departments of three faculties at the Hacettepe University, Ankara, Turkey. Participants’ mean age was 20.3 years (SD = 1.74; range = 17–27 years).

2.2. Measures

The participants were administered the revised form of the Paranormal Belief Scale (PBS-R, Tobacyk, 1988), the revised form of the Symptom Check List-90 (SCL-90-R, Derogatis, 1977), and the Internal-External Locus of Control Scale (IELOC, Rotter, 1966).

The revised Paranormal Belief Scale (PBS-R) by Tobacyk (1988), (Tobacyk & Milford, 1983) is originally a 26 item and seven-point self-report scale, which measures the following seven forms of paranormal beliefs: traditional religious belief, psi belief, witchcraft, superstition, spiritualism, extraordinary life forms, and precognition. The Turkish adaptation study of the scale was conducted by the researcher and a 23 item and five-point scale (strongly disagree = 1 to strongly agree = 5) resulted from the judgments of 7 specialists. Items 9, 14 and 16 of the original scale were omitted due to redundancy, and ‘the snowman of Tibet’ was replaced with ‘wolfman’ at item 6, and ‘the Loch Ness monster of Scotland’ was replaced with ‘Van Lake monster of Turkey’. In addition, only reversed items of the scale were changed to a positive direction in the expression of the item. Scores can range from 23 to 115, higher scores indicating more beliefs about paranormal phenomena.

The revised form of the Symptom Check List-90 (SCL-90-R) by Derogatis (1977) is a 90 item five-point self-report scale with 3 global indexes, indicating the level of psychiatric symptoms by increasing scores, and 9 subscales depending on factor analysis. However, further factor analysis by various researchers did not confirm its multidimensionality and it has been suggested that the scale is useful for its global distress indices (Bonyne, 1993; Carpenter & Hittner, 1995). The Turkish adaptation of the SCL-90-R (Dag, 1991a) had been done, and it was decided to use the scale as a global index of psychiatric symptomatology with its sufficient reliability and validity from a Turkish college sample.

The Internal-External Locus of Control Scale (IELOC) by Rotter (1966) is a 29 item forced-choice self-report scale with scoring range 0 (internality) to 23 (externality) excluding 6 buffer items. Higher scores on the scale are associated with the belief that external forces (e.g. fate,
luck, chance, authorities) are the primary determinants of one’s life reinforcements. The Turkish adaptation study of the IELOC had also been done previously and it was concluded that the Turkish version of the scale had sufficient reliability and factorial and criterion-related validity (Dag, 1991b).

2.3. Procedure

The study was conducted in 1996. The booklets of the aforementioned three scales were administered to the participants in classroom settings by the researcher himself in approximately half an hour sessions. They were instructed to read the directions of each scale carefully and respond to all the items anonymously, and to seek assistance if necessary.

3. Results

3.1. Reliabilities and factorial validities

Internal consistencies (Cronbach α) of the PBS-R and IELOC Scales were 0.87 and 0.70 respectively, and the split-half (Spearman-Brown) reliabilities were 0.90 and 0.67 respectively. Corrected item-total correlations were between 0.23 and 0.68 for the PBS-R, and 0.08 and 0.49 for the IELOC Scales. Test–retest reliability of the PBS-R (Pearson r) was 0.95 (df = 55, P < 0.0001).

Related to factorial validity, the Principal Components Analysis to PBS-R item scores extracted 6 factors at default in SPSS (6.0), explaining a total 63.1% of the variance. After examining various extraction and rotation methods, a five-factor solution with varimax revealed the simplest (most interpretable) structure. These factors and explained variances by them were (1) Traditional Religious Belief and Witchcraft (26.5%), (2) Precognition and Psi (12.2%), (3) Spiritualism (8.8%), (4) Superstition (5.7%), and (5) Extraordinary Life Forms (5.2%).

Another Principal Components Analysis of the IELOC Scale item scores extracted eight factors at default, explaining a total 52.1% of the variance. After examining various extraction and rotation methods, a five factor solution with varimax revealed the simplest (most interpretable) structure for this scale too. These factors and explained variances by them were (1) Unjust World (or Socio–political control) (13.9%), (2) Personal control (7.0%), (3) Control in Achievement Situations (6.9%), (4) Chance and Fate (5.5%), and (5) Interpersonal Control (5.3%).

3.2. Gender differences

Means and standard deviations for the PBS-R and the IELOC Scales with their global and subscale scores, and for the SCL-90-R with its global scores were reported separately for gender groups as well as for the whole sample in Table 1.

As seen in Table 1, females scored significantly higher than males on the Superstition subscale, and males scored significantly higher than females on the Extraordinary Life Forms subscale.

3.3. The relationships of paranormal beliefs, locus of control and psychopathology

To examine the relationships among paranormal beliefs, locus of control and psychiatric symptomatology, intercorrelations among the global and subscale scores of related devices were computed by the Pearson correlation technique, and presented in Table 2.
Table 1
Means, Standard Deviations and F values for gender differences

<table>
<thead>
<tr>
<th></th>
<th>Whole sample</th>
<th></th>
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<th>Females</th>
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<th>Males</th>
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<tr>
<td>PBS-R∗</td>
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<tr>
<td>Global paranormal score</td>
<td>52.4</td>
<td>13.0</td>
<td>52.3</td>
<td>13.0</td>
<td>52.5</td>
<td>12.9</td>
<td>0.014</td>
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<td>Traditional religious belief &amp; witchcraft</td>
<td>23.2</td>
<td>7.98</td>
<td>23.2</td>
<td>7.95</td>
<td>23.2</td>
<td>8.08</td>
<td>0.002</td>
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<tr>
<td>Precognition &amp; psi</td>
<td>9.37</td>
<td>3.24</td>
<td>9.32</td>
<td>3.15</td>
<td>9.48</td>
<td>3.44</td>
<td>0.192</td>
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<td>Spiritualism</td>
<td>5.47</td>
<td>2.63</td>
<td>5.50</td>
<td>2.74</td>
<td>5.42</td>
<td>2.41</td>
<td>0.079</td>
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<tr>
<td>Supernstitution</td>
<td>5.32</td>
<td>2.06</td>
<td>5.50</td>
<td>2.13</td>
<td>4.97</td>
<td>1.88</td>
<td>5.18*</td>
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<td>Extraordinary life forms</td>
<td>3.84</td>
<td>1.27</td>
<td>3.73</td>
<td>1.11</td>
<td>4.08</td>
<td>1.53</td>
<td>5.94*</td>
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<td>IELOC scaleb</td>
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<td>Global external score</td>
<td>10.8</td>
<td>3.94</td>
<td>10.9</td>
<td>4.13</td>
<td>10.8</td>
<td>3.52</td>
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<td>Unjust world</td>
<td>2.89</td>
<td>1.58</td>
<td>2.85</td>
<td>1.65</td>
<td>2.97</td>
<td>1.44</td>
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<td>Personal control</td>
<td>2.72</td>
<td>1.46</td>
<td>2.73</td>
<td>1.51</td>
<td>2.70</td>
<td>1.39</td>
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<td>Control in achievement situations</td>
<td>1.76</td>
<td>1.19</td>
<td>1.74</td>
<td>1.21</td>
<td>1.82</td>
<td>1.16</td>
<td>0.323</td>
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<td>Chance &amp; fate</td>
<td>1.13</td>
<td>1.07</td>
<td>1.16</td>
<td>1.10</td>
<td>1.06</td>
<td>1.03</td>
<td>0.669</td>
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<td>Interpersonal control</td>
<td>1.84</td>
<td>0.98</td>
<td>1.90</td>
<td>0.99</td>
<td>1.72</td>
<td>0.95</td>
<td>2.390</td>
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<tr>
<td>SCL-90-Rc</td>
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<tr>
<td>Global symptom index</td>
<td>1.07</td>
<td>0.51</td>
<td>1.08</td>
<td>0.52</td>
<td>1.06</td>
<td>0.48</td>
<td>0.163</td>
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<td>Positive symptom total</td>
<td>53.5</td>
<td>17.6</td>
<td>53.7</td>
<td>18.0</td>
<td>53.3</td>
<td>16.7</td>
<td>0.031</td>
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</table>

* Paranormal Belief Scale-Revised (Tobacyk, 1988).
b Internal-External Locus of Control Scale (Rotter, 1966).
c Symptom Check List-90-Revised (Derogatis, 1977).

As seen in Table 2, small but significant positive correlations between the global scores of the PBS-R and the IELOC Scales (r = 0.31, P < 0.0001), the PBS-R and the SCL-90-R (r = 0.14, P < 0.01), and the IELOC Scale and the SCL-90-R (r = 0.31, P < 0.0001) were found. All the intercorrelations among the subscales and global scale scores of the PBS-R were significant at least at the P < 0.001 level. All the intercorrelations among the subscales and global scale scores of the IELOC Scale except three were significant at least at the P < 0.05 level. Twenty-four of the 36 intercorrelations among the PBS-R and the IELOC Scales’s global and subscale scores were significant at least at the P < 0.05 level. Six of the 12 intercorrelations among the PBS-R and the SCL-90-R global and subscale scores were significant at least at the P < 0.05 level, and 10 of the 13 intercorrelations among the IELOC Scale and the SCL-90-R global and subscale scores were significant at least at the P < 0.05 level.

Multiple regression analyses were done to find the paranormal beliefs that predict locus of control and psychopathology. In the first three regression analyses for the whole sample, locus of control, GSI scores and PST scores were the criterion respectively and PBS-subscakes were the
Table 1
Intercorrelations of PBS-R, IELOC global and subscale scores and SCL-90-R global scores

| PBS-R* | (1) Global paranormal score — | (2) Traditional religious belief & witchcraft 0.85 — | (3) Precognition & psi 0.70 0.34 — | (4) Spiritualism 0.57 0.23 0.45 — | (5) Superstition 0.68 0.64 0.35 0.19 — | (6) Extraordinary life forms 0.44 0.24 0.31 0.18 0.29 — |
| ILEOC scale | (7) Global external score 0.31 0.30 0.15 0.12 0.26 0.11 — | (8) Unjust world 0.26 0.28 0.11 0.06 0.22 0.07 0.70 — | (9) Personal control 0.25 0.25 0.11 0.10 0.21 0.02 0.74 0.38 — | (10) Control in achievement situations 0.15 0.08 0.15 0.09 0.12 0.11 0.51 0.10 0.26 — | (11) Chance & fate 0.37 0.34 0.18 0.15 0.28 0.19 0.58 0.29 0.33 0.17 — | (12) Interpersonal control —0.06 —0.04 —0.07 —0.03 —0.03 —0.05 0.42 0.14 0.17 0.08 0.04 — |
| SCL-90-R | (13) Global symptom index 0.14 0.09 0.05 0.12 0.16 0.09 0.31 0.18 0.29 0.20 0.10 0.12 — | (14) Positive symptom total 0.11 0.07 0.02 0.09 0.14 0.14 0.28 0.16 0.22 0.22 0.10 0.09 0.87 |

Note. The values over 0.19 are significant at $P < 0.0001$; the values between 0.15 and 0.18 are significant at $P < 0.001$; between 0.13 and 0.14 are significant at $P < 0.01$; between 0.11 and 0.12 are significant at $P < 0.05$.

*See footnotes of Table 1 for abbreviations.

Predictors for all. The same analyses were repeated also for genders. The results were combined in Table 3. As seen in Multiple R values in Table 3, PBS-subscales predicted locus of control better than psychopathology. Traditional Religious Belief and the Witchcraft subscale was the only significant predictor of locus of control, and Superstition was the only significant predictor of GSI scores. Superstition and Extraordinary Life Forms subscales predicted PST scores significantly. There were some gender differences in terms of significant $\beta$ coefficients.

3.4. Comparisons of extreme groups on locus of control and paranormal beliefs

An additional analysis was run to compare the extreme groups on locus of control and paranormal beliefs in terms of the differences on psychopathology and the results are summarised in Table 4. The extreme groups were determined by the cut off points on related scale scores that depend on $+1$ and $-1$ standard deviation units. As seen in Table 4, externals were significantly more symptomatic than internals, and ‘believers’ were significantly more symptomatic than ‘unbelievers’.
Table 2
Standardized regression coefficients ($b$'s) for PBS-R subscales predicting locus of control and psychopathology for males, females, and combined group

| PBS-R Subscales | Locus of control | | | Psychopathology | | |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|                  | Total score     | Male            | Female          | Comb.           | Male            | Female          | Comb.           |
| Traditional religious belief & witchcraft | 0.13 | 0.25** | 0.21** | -0.07 | -0.04 | -0.03 | -0.07 | -0.06 | -0.04 |
| Precognition & psi | 0.14 | -0.04 | 0.01 | 0.04 | -0.10 | -0.06 | 0.02 | -0.15 | -0.09 |
| Spiritualism | -0.01 | 0.07 | 0.04 | 0.16 | 0.09 | 0.11 | 0.18 | 0.06 | 0.09 |
| Superstition | 0.06 | 0.12 | 0.11 | 0.28* | 0.14 | 0.17* | 0.22 | 0.14 | 0.15* |
| Extraordinary life forms | 0.08 | -0.03 | 0.01 | -0.02 | 0.07 | 0.05 | 0.03 | 0.15* | 0.11* |
| Multiple R | 0.30*** | 0.34*** | 0.32*** | 0.32* | 0.17 | 0.20* | 0.30 | 0.21 | 0.20* |
| $r^2$ | 0.09*** | 0.12*** | 0.10*** | 0.10* | 0.03 | 0.04* | 0.09 | 0.04 | 0.04* |

Note: * $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$.  
GSI: Global Symptom Index of SCL-90-R.  
PST: Positive Symptom Total of SCL-90-R.  
PBS-R: Paranormal Belief Scale-Revised (Tobacyk, 1988).

Table 3
Comparisons of the Global Symptom Index (GSI) scores of extreme groups* on locus of control and paranormal beliefs

<table>
<thead>
<tr>
<th>Locus of control</th>
<th>Externals</th>
<th>Internals</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>M = 0.81</td>
<td>1.26</td>
<td>5.70*</td>
<td></td>
</tr>
<tr>
<td>SD = 0.44</td>
<td>0.44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$f$ = 67</td>
<td>58</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Paranormal beliefs

<table>
<thead>
<tr>
<th>Believers</th>
<th>Unbelievers</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>M = 1.08</td>
<td>0.91</td>
<td>1.72**</td>
</tr>
<tr>
<td>SD = 0.52</td>
<td>0.49</td>
<td></td>
</tr>
<tr>
<td>$f$ = 53</td>
<td>56</td>
<td></td>
</tr>
</tbody>
</table>

Note: * The extreme groups were determined by the cut off points on related scale scores that depend on +1 and −1 standard deviation units.  
* $P < 0.001$.  
** $P < 0.05$.  
*GSI: Global Symptom Index of SCL-90-R.  
PST: Positive Symptom Total of SCL-90-R.  
PBS-R: Paranormal Belief Scale-Revised (Tobacyk, 1988).
4. Discussion

4.1. The discussion of reliabilities and validities

An additional aim, as a prerequisite for the major aim of the present study was to examine the reliabilities and factorial validities of the Turkish versions of the scales measuring paranormal beliefs and locus of control. The internal consistencies and other reliability indices of the Turkish versions of the PBS-R and the IELOC Scales were sufficiently high for the specific sample.

The factorial structure of the Turkish version of the PBS-R was slightly different from the English form. Precognition and Psi beliefs did not decompose as well as Traditional Religious Belief and Witchcraft which were the separate factors in the original study (Tobacyk & Milford, 1983). The sample of the present study was formed by Muslim participants whose basic religious beliefs are composed of believing in God, the devil, a heaven and a hell, and the immortal spirit. There is also a belief in witchcraft in Islam but it is forbidden. Therefore, all the items about those beliefs were combined in the first factor. Similarly, believing in precognition and psi, that were combined in the second factor, are also inseparable conceptually for lay people in the Turkish culture; all are related to a supernatural ability or power. Moreover, item 10 of the original study’s (Tobacyk & Milford, 1983) Witchcraft factor, namely ‘witches do exist’ was translated with the concept of ‘cadi’ that was conceptualised as an extraordinary existence by lay people, and therefore loaded on the Extraordinary Life Forms factor. The structures of other factors were in accordance with the original study except a few items that did not load on the related factors with a 0.50 loading, and there were some other differences which may stem from the omission of three items in the Turkish version. On the other hand, the intercorrelations (ranging between 0.18 and 0.64) of the subscales of the PBS-R also justified the use of the subscales separately. Besides those differences that were reported, it could be concluded that the factorial validity of the Turkish version of the PBS-R was sufficient to use it.

On the other hand, the factorial structure of the Turkish version of the IELOC Scale did contain major control areas, reported in the studies using the original English scale (Joe & Jahn, 1973; Duffy, Shiflett & Downey, 1977) as well as in other languages (Tobacyk, 1978; Chan, 1989), such as believing in an Unjust World (or Socio-political control), Chance and Fate, Personal Control, Interpersonal Control, and Control in Achievement Situations. The intercorrelations (ranging between 0.04 and 0.38) of the subscales of the IELOC Scale also justified the use of subscales separately. Overall, it could be concluded that the factorial validity of the Turkish version of the IELOC Scale in the present study, as in the previous study (Dag, 1991b), was sufficient to use it.

4.2. The discussion of gender differences

There were a few significant gender differences in the study. Only Superstition among females and Extraordinary Life Forms among males was significantly higher. Tobacyk and Milford (1983) reported higher scores of females on the global paranormal scale, Traditional Religious Belief and Precognition in a U.S.A. sample, which were dissimilar to the present results; but reported more beliefs in Extraordinary Life Forms among males, which was similar to the present results. Moreover, Wolfradt (1997) reported higher scores of females on global and subscale scores except Traditional Religious Belief and Extraordinary Life Forms in a German sample. Reported gender
differences on paranormal beliefs to the disadvantage of females (Clarke, 1991; Irwin, 1993; Blackmore, 1994) were not supported by the present study, and the inconsistency in the results might have resulted from cultural differences, if not from the 2:1 ratio of female participants over male ones in the present study.

4.3. The discussion of the relationships of paranormal beliefs, locus of control and psychopathology

After discussing these reliability, validity and gender difference issues, now I turn to the major point of my investigation; the multiple relationships among paranormal beliefs, locus of control and psychopathology. Related to this aim, intercorrelations among the scales and subscales were computed. As seen in Table 2, small but significant positive correlations between the global scores of the PBS-R and the IELOC Scales (r = 0.31, P < 0.0001), the PBS-R and the SCL-90-R (r = 0.14, P < 0.01), and the IELOC Scale and the SCL-90-R (r = 0.31, P < 0.0001) were found as expected. These findings supported previous research reporting correlations between paranormal beliefs and locus of control (Scheidt, 1973; Tobacyk & Milford, 1983), between paranormal beliefs and psychopathology (Eckblad & Chapman, 1983; Okebukola, 1986; George & Neufeld, 1987; Richards, 1991; Thalbourne, 1994; Wolfradt, 1997; Chequers et al., 1997; Roig et al., 1998), and between locus of control and psychopathology (Hale & Cochran, 1987; Dag, 1992, for a review; Gomez, 1998).

Upon the suggestions of previous researchers (Davies & Kirkby, 1985; Tobacyk et al., 1988) about the utility of multidimensional conceptualisation, intercorrelations among the subscales of the PBS-R and the IELOC Scales were examined. There were significant positive correlations among global paranormal belief and subscales of locus of control except Interpersonal Control. All paranormal subscales were significantly and positively correlated with global locus of control. Tobacyk and Milford (1983) reported a significant correlation only between Extraordinary Life Forms and locus of control. There were significant positive intercorrelations among subscales of the two scales: Traditional Religious Belief and Witchcraft with Unjust World, Personal Control, Chance and Fate; Precognition and Psi and Superstition with all subscales except Interpersonal Control; Spiritualism with Chance and fate; Extraordinary Life Forms with Chance and fate, and Control in Achievement Situations (Table 2). These findings were not comparable with Davies + Kirkby’s (1985) and Tobacyk et al.’s (1988) studies because they used the Sphere of Control Scale to measure locus of control.

On the other hand, Spiritualism, Superstition and Extraordinary Life Forms, in contrast to all the subscales of locus of control except Chance and Fate (though it only approximates to statistical significance, P < 0.06) were significantly and positively correlated with psychopathology. These findings only partially supported the findings of Tobacyk and Milford (1983) and Wolfradt (1997), perhaps due to scale differences, to measure psychopathology; only the present study measured global psychiatric symptomatology to relate to paranormal beliefs.

The role of various paranormal beliefs in predicting locus of control and psychopathology were another interest of the study, because different dimensions of paranormal beliefs might differentially predict the criteria of locus of control and psychopathology. Hence, a series of multiple regression analyses were run for both different sexes and two criteria. As seen in Table 3, the PBS-R subscales predicted locus of control better than psychopathology in general. Traditional Religious Belief and the Witchcraft subscale were the only significant predictors of locus of control in contrast to previous findings (Tobacyk & Milford, 1983; Tobacyk et al., 1988; Davies & Kirkby, 1985), and
Superstition was the only significant predictor of psychopathology (GSI scores) in the combined sex group. Superstition and additionally the Extraordinary Life Forms subscales predicted another psychopathology index significantly, namely PST scores in the combined sex group again. Similarly, Tobacyk and Milford (1984) and Wolfradt (1997) reported significant correlations between Superstition, Spiritualism and psychopathology (e.g. irrational beliefs, dissociative experiences, anxiety). Traditional Religious Belief & the Witchcraft subscale was not among the predictors of psychopathology, and consistent with this finding, Wilde and Joseph (1997) reported a significant negative correlation between the Moslem attitude towards religiosity and psychotism in a Moslem sample. The significant prediction of the locus of control by Traditional Religious Belief and Witchcraft was seen to stem from the female sample, because the related $\beta$ coefficient was significant only in the female sample. In much the same way, the significant prediction of the psychopathology by Superstition was seen to stem from the male sample. Nonetheless, only in the female sample, did the Extraordinary Life Forms subscale predict PST scores significantly whereas the Superstition subscale was also a significant predictor in the combined sex group. In the related literature, the only study focussing on sex differences was Wolfradt (1997)’s, and only he reported any significant $\beta$-coefficients for sex variables in predicting psychopathology from paranormal beliefs.

Based on the consideration of the significant intercorrelations among scales, comparisons of the extreme groups on locus of control and paranormal beliefs in terms of the differences on psychopathology showed more clear results. Externals were significantly more symptomatic than internals, and ‘believers’ were significantly more symptomatic than ‘unbelievers’. These findings also supported the related literature (Scheidt, 1973; Tobacyk & Milford, 1983; Eckblad & Chapman, 1983; Okebukola, 1986; George & Neufeld, 1987; Hale & Cochran, 1987; Richards, 1991; Dag, 1992; Thalbourne, 1994; Wolfradt, 1997).

5. Conclusion

In the present study, it was shown that there were small but significant relationships among paranormal beliefs, locus of control and psychiatric symptomatology in a Turkish college sample, in accordance with some earlier studies conducted in other countries. It was also shown that there were differential relationships among the various dimensions, depending on factor analyses of paranormal beliefs and locus of control scales, and between those dimensions and psychopathology. Paranormal dimensions predicted locus of control better than psychopathology in general. However, there is a need for further researches, following on these preliminary results, that focus on those multidimensional relationships more closely, with more improved measurement devices, with balanced samples of genders and other than college students. Additional measures, such as intensity, accessibility, centrality and self-referencing to these beliefs should also be evaluated synchronously (Tobacyk, 1995).

Moreover, if there is a relationship between having paranormal beliefs and psychiatric symptoms as well as an external locus of control in real life behind those low level correlations, or in other words, if there is real significance behind those statistical significances, this should be reconsidered in the light of the preliminary impressions held by Snyder (1997). Snyder (1997) stated in the special issue of the *Journal of Social and Clinical Psychology*: “Bizarre behavior as seen from the social and clinical psychology interface” under his editorship, that uncommon behavior (like
claimed satanic ritual abuse or UFO abductions) often reflects the inability of the people to meet their needs (such as, to be protected, attended, listened to, and being in connection with others, and to vividly experience; hence the acronym \textit{PLACE}) via usual avenues. This impression may also be combined with the Tobacyk’s (1995) perspective, as stating paranormal beliefs (like all other beliefs) provide persons and societies with meaning in life, with perceived control, and with resources for adjustment.

Finally, an early and perhaps immature speculation might be such that, persons who have an external locus of control based on their history of reinforcement or have a less perceived control (see, Skinner, 1996, for an invaluable review of constructs of control) may attempt to gain some kind of control over their lives, by having bizarre behavior and/or complementary paranormal beliefs, in the absence of normal or adaptive means of control, but with a cost that makes them appear psychopathological. Furthermore, much of human psychopathology may be conceived in this frame of reference.

References


