

Psychometric Properties of the Persian Version of the Magical Ideation Scale (MIS) in University Students

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This study was carried out in order to evaluate the psychometric properties of the Persian version of the Magical Ideation Scale (MIS) for 327 (171 females, 156 males) undergraduate students at the University of Isfahan. All students were asked to complete the Persian version of the MIS. The factorial or construct validity of the MIS by exploratory principal components analysis (PCA) with an oblimin rotation resulted in 3 factors which corresponded to 80.76% of the total variance and named 1) hallucination-like experiences and delusion-like beliefs, 2) telepathy and 3) paranormal beliefs. The reliability coefficients (Cronbach alpha and test-retest reliability) were found to be satisfactory for the factors and the total scale. Based on these results, it was concluded that the MIS possesses good validity and reliability in the Iranian population.

Keywords: magical ideation scale, validity, reliability, Psychometric properties.

Magical thinking (also known as magical ideation) is often intensified in mental disorders such as psychosis proneness (Kwapile, Miller, Zinser, Chapman and Chapman, 1997), and obsessive-compulsive disorder (OCD) (Bolton, Dearsley, Madronal-Luque, and Baron-Cohen, 2002; Danielle, Einstein, Ross, and Menzies, 2004), as well as in symptoms of some psychiatric disorders like schizotypal personality disorder (Eckblad and Chapman, 1983; American Psychiatric Association, 1994). Indeed, subjects who endorse magical beliefs evidence a right hemispatial inattention that is qualitatively similar to that of patients with schizophrenia (Brugger and

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Graves, 1997; Taylor, Zäch and Brugger, 2002). However, not only research findings indicate that as human beings, we are quite susceptible to what has been termed magical thinking (Rozin and Nemeroff, 1990) but also, research has shown associations between higher creativity (e.g., semantic association, verbal fluency), higher schizotypy (e.g., magical ideation), and relatively stronger right hemisphere laterality measures (Weinstein and Graves, 2002). But what is magical thinking?

Historically, 'bizarre' ideations have been linked to spiritual experience as well as to mental illness (Eckblad and Chapman, 1983). They may also derive from, and include superstitiousness, clairvoyance, telepathy (American Psychiatric Association, 1980). However, it is interesting that magical ideations have been found to be prominent characteristics of people considered to be at risk for the later development of schizophrenia (Eckblad and Chapman, 1983), and may be related to or manifest as visual and auditory hallucinations (Chadwick and Birchwood, 1994; Close and Garety, 1998).

On the other hand, one principle of such magical thinking is the law of contagion: it holds that when two objects touch, they pass properties to one another, and that the effects of contact may last well beyond the end of the contact between them (Zusne and Jones, 1989). For example, suppose someone with AIDS bought a shirt sealed in a plastic bag and put it away in a drawer for a year, would you wear it if they gave it to you? Another is the law of similarity, which suggests that things that resemble one another share basic properties. For example, imagine that someone offered you a piece of chocolate shaped like a spider, would you eat it? Still, a third assumes that one's thoughts can influence the physical world in a manner not governed by the laws of physics. For example, when you are in class and don't want the professor to call on you, if you think about her calling on you, does this increase the possibility that she really will (Baron and Byrne, 2000)?

A review of literature indicates that many scales have been measured magical thinking, such as, Schizotypal Characteristics Scale (SCS) by Najarian and Davoodi (2002). However, it is worth mentioning that,

looking at magical thinking as a symptom of some psychiatric disorder like schizotypal personality disorder, Eckblad and Chapman (1983) designed the Magical Ideation Scale (MIS). The MIS is a 30-item true/false inventory asking about hallucination-like experiences and beliefs in a paranormal causation of coincidences (see appendix). But on the basis of field observations, it seemed that there was no accessible basic information about the MIS factors. Merely, in a number of studies, two factors can be found; paranormal and nonparapsychological (Thalbourne, 2004).

Moreover, the French translation of the MIS on 233 students (108 males and 125 females) showed high internal reliability (Cronbach's alpha = 0.85) (Dumas, Bouafia, Gutknecht, Saoud, Dalery, and d'Amato, 2000). The Japanese translation was provided by Okura (Mohr, Hubener, and Laska, 2002). This researcher assessed the MIS score from 383 healthy Japanese: 37 female kindergarten teachers, 90 female nurses, 23 male firemen and 233 medical students (71 women). The coefficient-alpha reliabilities of the items in the scale were found to be 0.80 for the whole sample, 0.81 for women and 0.76 for men. The coefficient alpha reported in Garety and Wessely (1994) for a sample of 1512 North American college students is comparable (alpha = 0.80). The Turkish version of the MIS also indicated good reliability. In the Turkish version of MIS Internal consistency high cut-off scores were studied in 332 medical students. The internal consistency of the scale was satisfactory with a Cronbach alpha coefficient of 0.78. Test-retest scores were highly correlated ($r = 0.84$). Convergent validity was established by the significant correlation between the total MIS and Paranormal Belief Scale-R (PBS-R) scores ($r = 0.61$) (Atbasoglu, Kalaycioglu, and Nalcaci, 2003).

In summary, although the concept of magical ideation was originally introduced as an indicator of schizotypy (Eckblad and Chapman, 1983), subsequent work has unequivocally demonstrated that the continuum of magical ideation is psychometrically relevant even within samples of healthy subjects scoring below what would be considered indicative of a schizotypal personality disorder by commonly accepted standards (Kelley and Coursey, 1992). Most importantly, even entirely healthy subjects with

relatively high magical ideation scores display neuropsychological abnormalities that are qualitatively similar to those displayed by patients with schizophrenia (Mohr, Röhrenbach, Laska, and Bruggera, 2001). Indeed investigations of magical ideation in healthy subjects may help to specify schizotypal symptoms.

The present study describes the self-report scale of magical thinking that may be used as symptoms of some psychiatric disorders like schizotypal personality disorder. Also, In order to use tests in different cultural settings, some important issues, such as linguistic equivalence of meaning, examiner variability, cultural variations, and representative sampling, must not be ignored. Thus, it has been realized that a mere translation and superficial adaptation of existing psychological instruments that measure perceptual, cognitive, and personality development and functioning are clearly not sufficient for producing valid cross-cultural comparisons. What is needed is the standardization of psychological instruments within each culture (Alexopoulos, 1997). The present study was designed to explore validity (i.e., factor structure) and reliability (i.e., internal consistency, test-retest reliability) of a Persian version of the MIS in university students.

Method

Subjects

The statistical population consisted of Isfahan university students. The sample for this study was selected through a random clustering procedure, that is, from faculties of Isfahan University, i.e. the four faculties of literature and humanities, foreign languages, educational sciences and psychology, as well as engineering were randomly selected. Next, two classes were randomly selected from each of these four faculties, and class students completed the self-report questionnaire. Therefore, the sample consisted of 327 undergraduate students from Isfahan University (171 females with mean age of 21.92 and standard deviation 3.63 and 156 males with mean age of 22.30 and standard deviation 3.32). All participants were asked to complete the Persian Version of the Magical Ideation Scale (MIS). Sixty-three of the 327 participants (with mean age of 21.60 and standard

deviation 3.49) completed the MIS twice with a three weeks interval for test-retest reliability.

Instruments

The Magical Ideation Scale (MIS; Eckblad and Chapman, 1983). Like the original version, The Persian translation of the MIS is a 30 item true/false measure. Scores on the MIS range from 0 to 30, with higher scores indicating more pronounced magical thinking. The scale is published in full in Eckblad and Chapman (1983) and normative data can be found in Garety and Wessely (1994). The original scale was translated into Persian by the author. Two English persons, as Foreign Language instructors, judged the translation and revised it; finally, four psychologists confirmed the translated version of the scale.

Statistical analysis

The exploratory principal components analysis (PCA) with an oblimin rotation was performed on the data to explore the possible structure of the MIS with Iranian participants. The value of internal consistency (Cronbach's alpha) for MIS and its factors was calculated. The Pearson product moment correlation coefficient (r) was calculated to assess the test-retest reliability. Analytical procedures were carried out through the Statistical Package for the Social Sciences (SPSS) software.

Results

As mentioned earlier, the MIS is completed by a sample of 327 students. The total mean scale was 11.08 (standard deviation 3.45).

Validity

Factor Analysis of data (oblimin rotation) revealed that all items were loaded on three factors. Table 1 shows the items and the factor loadings for each factor. Factor 1 is composed of items 2, 3, 5, 7, 8, 9, 14, 15, 17, 18, 24, 26, 27 and 28, corresponding to reflect the “hallucination-like experiences and delusion-like beliefs” dimension. Items 6, 12, 13, 20 and

30 relate to the “telepathy” dimension (factor 2). Factor 3 reflects “paranormal beliefs” and is composed of items 1, 4, 10, 11, 16, 19, 21, 22, 23, 25 and 29. Factor 1 corresponds to 71.98% of the explained variance and factor 2 encompasses 5.03% of the explained variance. Finally, factor 3 reflects 3.74% of the explained variance.

Table 1
Results of MIS Factor Analysis Using PCA

Factor 1		Factor 2		Factor 3	
Items	Loading	Items	Loading	Items	Loading
2	0.87	6	0.87	1	0.87
3	0.97	12	0.42	4	0.60
5	0.97	13	0.57	10	0.48
7	0.97	20	0.99	11	0.32
8	0.31	30	0.87	16	0.32
9	0.57			19	0.94
14	0.80			21	0.90
15	0.34			22	0.60
17	0.68			23	0.90
18	0.52			25	0.47
24	0.97			29	0.90
26	0.82				
27	0.65				
28	0.55				

Notes: Questionnaire items loading at 0.30 or above were considered in the factor solution.

Extraction Method: Principal Component Analysis.

Rotation Method: oblimin with Kaiser Normalization.

Factor 1(hallucination-like experiences and delusion-like beliefs), eigen value= 21.59, total variance explained =71.98%

Factor 2(telepathy), eigen value= 1.51, total variance explained =5.03%

Factor 3(paranormal beliefs), eigen value= 1.12, total variance explained=3.74%

Table 2 shows the correlation coefficients of the three factors with each other and with the total score.

Table 2**Correlations of Factors with Each Other and with the Total MIS**

Factors	1	2	3	MIS
1.hallucination-like experiences and delusion-like beliefs	---	0.42**	0.49**	0.13*
2. telepathy		---	0.51**	0.12*
3. paranormal beliefs			---	0.17**
MIS				---

** Significant at p<.01 level

* Significant at p<.05 level

As seen in Table 2, all factors and the total scale were positively correlated with each other thus, the principal components analysis (oblimin rotation) was appropriate.

Reliability

To assess the reliability of the MIS, internal consistency coefficients and test-retest were calculated for the scale. The MIS was administered twice to a subsample of the original sample (N = 63) with a mean age of 21.60 and standard deviation 3.49 with an interval of three weeks for test-retest reliability.

Reliability of the internal consistency coefficients and test-retest for the scale of females, males and the whole sample are shown in Table 3.

Table 3**Alpa and Test-Retest Reliabilities of the MIS and Its Factors**

Factors	Overall		Female		Males	
	Alpha	Test-retest	Alpha	Test-retest	Alpha	Test-retest
1	0.88	0.75	0.89	0.73	0.85	0.79
2	0.62	0.90	0.60	0.94	0.63	0.85
3	0.70	0.89	0.72	0.93	0.65	0.85
MIS	0.88	0.80	0.89	0.72	0.86	0.90

As is evident, the total scale internal consistency coefficients, and test-retest as well as the coefficients obtained for each subscales are satisfactory.

Discussion

This study examined the statistical psychometric qualities of a measure of magical thinking (MIS) on a sample of Iranian university students. The results of a factor analysis and evaluation of reliability and validity indicate that this test can be used with some confidence to assess the major dimensions of magical thinking in Iran.

Namely, the PCA with an oblimin rotation was performed on the data to explore the factorial or construct validity of the MIS. The results indicated that magical thinking cannot simply be treated as a unitary dimension, as is often the case in different theories of psychology and psychiatry (American Psychiatric Association, 1980; Thalbourne, 2004). Indeed Factor analysis of the MIS produced three factors. The first and strongest factor, Factor 1, reflected “hallucination-like experiences and delusion-like beliefs”, and was similar to visual and auditory hallucinations reported for the magical thinking (Chadwick and Birchwood, 1994; Close and Garety, 1998). Factor 2 identified “telepathy” and corresponded to telepathy in magical thinking definition (American Psychiatric Association, 1980). Factor 3 “Paranormal beliefs” was similar to the paranormal subscale reported by Thalbourne (2007), as well as, in agreement with what has been reported by Atbasoglu et al. (2003) in the field of correlation between the MIS and PBS-R scores.

The Cronbach alpha coefficient and test- retest methods was applied to evaluate the scale reliability. Cronbach alpha for the total scale was equal to 0.88, and this is a very good value. Also, this result was in agreement with what has been reported in other studies such as the French version (Dumas et al., 2000) and the Turkish version (Atbasoglu et al., 2003). Also, Cronbach's alpha obtained in the telepathy factor was somewhat lower but statistically acceptable. The test-retest scores were also highly correlated ($r= 0.80$) which produced results similar to those reported by Atbasoglu et al. (2003) for university students.

In summary, this study provides supporting evidence for the validity, reliability, and multifactor structure of the MIS among Iranian students. There can be much confidence in using this scale in Iran, and magical

thinking has a similar result across French, Turkish, Japanese and Iranian cultures. On a final note, the MIS factors were determined according to the author's view because there was no accessible basic information about it. Therefore, further studies are required in order to substantiate the psychometric features of this scale in other samples and populations.

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Appendix

Magical Ideation Scale (MIS)

1. When introduced to strangers, I rarely wonder whether I have known them before.
2. The hand motions that strangers make seem to influence me at times.
- *3. I almost never dream about things before they happen.
4. At times I perform certain little rituals to ward off negative influences.
- *5. I have never had the feeling that certain thoughts of mine really belonged to someone else.
6. I have sometimes had the feeling of gaining or losing energy when certain people look at me or touch me. 7. I have sometimes felt that strangers were reading my mind.
8. Things sometimes seem to be in different places when I get home, even though no one has been there.
9. At times I have felt that a professor's lecture was meant especially for me.
10. I have occasionally had the silly feeling that a TV or radio broadcaster knew that I was listening to him. 11. I have felt that there were messages for me in the way things were arranged, like a store window.
12. Some people can make me aware of them just by thinking about me.

13. I think I could learn to read others' minds if I wanted to.
14. I have noticed sounds on my records that are not there at other times.
15. I have sometimes had the passing thought that strangers are in love with me.
- *16. Good luck charms don't work.
17. I have worried that people on other planets may be influencing what happens on earth.
18. The government refuses to tell us the truth about flying saucers.
19. People often behave so strangely that one wonders if they are part of an experiment.
- *20. It is not possible to harm others merely by thinking about bad thoughts about them.
21. If reincarnation were true, It would explain some unusual experiences I have had.
- *22. Numbers like 13 or 7 have no special powers.
23. I have had the momentary feeling that I might not be human.
24. I have sometimes been fearful of stepping on sidewalk cracks.
25. Horoscopes are right too often for it to be a coincidence.
26. I have had the momentary feeling that someone's place has been taken by a look-alike.
- *27. I have never doubted that my dreams are the products of my own mind.
28. I have sometimes sensed an evil presence about me, although I could not see it.
29. I have wondered whether the spirits of the dead can influence the living.
30. I have felt that I might cause something to happen just by thinking too much about it.

Notes: All items are presented on a 2-point scale ranging from true (1) to false (0).

* Item scored in opposite direction before responses are summed.

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