

Mindful Attention Awareness Scale (MAAS): Reliability and Validity of Persian Version

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ABSTRACT

This research was carried out to determine the reliability and validity of Persian version of Mindful Attention Awareness Scale (MAAS). This is a cross-sectional research. 383 Students of Tabriz University of Medical Sciences and Health Services were selected by cluster sampling. Cognitive emotion regulation questionnaire (CERQ), the revised Eysenck Personality Questionnaire - short (EPQRS), Spielberger Trait Anxiety subscale (STAI-X), Beck Depression Inventory (BDI-II), and General Health Questionnaire (GHQ) were used to determine validity simultaneously with MAAS. The data were analyzed by SPSS.21 software via statistical methods of Pearson correlation, independent t-test and ANOVA variance analysis. There were divergent validity (negative correlation) between MAAS and unadjusted cognitive emotion regulation subscale, two personality factors (psychotism and neurotism), Beck Depression Inventory, Trait Anxiety Inventory, General Health Questionnaire ($r=-0.12$ to $r=-0.35$, $P<0.05$). There was convergent validity (positive correlation) between MAAS and cognitive emotion ($r=0.23$, $P<0.05$). The reliability coefficient, Cronbach's alpha and test-retest reliability of MAAS was respectively 0.76 and 0.69. There was no statistically significant difference in Mindfulness mean scores between male and female students. There was no significant difference in MAAS between gender and ethnicity (Azeri, Kurdish and Farsi) of students. The Persian version of Mindful Attention Awareness Scale (MAAS) can be used in clinical and scientific research fields in Iran.

KEYWORDS: Mindful Attention Awareness Scale, Reliability, Validity, Persian version.

INTRODUCTION

Philosophers, religious schools and psychologists emphasize on the importance of a particular quality of consciousness that has been borrowed from Buddhism known as Mindfulness. Mindfulness is certain quality of consciousness and considering the each moment experience of life. In other words, Mindfulness is maintaining a clear awareness of present truth where the person is aware of present events and is not musing over the past ruminant thoughts and long dreams (Brown & Ryan, 2003). In the psychotherapy literature it is defined as seeing without interpretation and criticizing the current internal and external stimuli, as it happens (Schenstrom, Rönnerberg & Bodlund, 2006). In Mindfulness-based psychotherapy approach, Personal experiences such as physical symptoms, emotions and thoughts are being observed, such that, the behavioral effects of these experiences are automatically reduced which finally leads to more balance, more efficient performance and actual contact with the facts and lack of reactivity (Ma & Teasdale, 2004).

Researches show that promoting mindfulness is dramatically effective in patients' chronic pain relief, mood disturbances, cancer patients, treatment of eating disorders, recurrent depression, reducing sleep problems and anxiety, heart rate and blood pressure control, enhancing immune function, increasing focus and prevention of relapse to abuse disorders (Brown & Ryan, 2003; Schenstrom & et al, 2006; Shigaki, Glass & Schopp, 2006; Carlson & Brown, 2005). In this regard nowadays mindfulness-based stress reduction approach, has its own fans as one of psychotherapy methods which develops ever-increasingly in this scientific area (Ma & Teasdale, 2004).

Extensive research studies on mindfulness and its applications in the field of psychological interventions require a reliable tool for measuring the mindfulness. So far, several tools have been designed to measure mindfulness. Such as The Five Facets Mindfulness Questionnaire (FFMQ) and Mindful Attention Awareness Scale for Adolescents (MAAS-A), the most widely used measure is of Mindfulness Attention Awareness Scale (MAAS) (Van Dama, Earleywine & Borders, 2010).

Mindfulness scale has 15 items that was designed as a single structure factor by Brown and Ryan (2003) they have investigated divergent and convergent Concurrent validity of psychometric indices of mindfulness scales with different personality questionnaires. Cronbach's alpha reliability coefficient was 0.80 to 0.87 for different samples of students (Brown & Ryan, 2003).

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The construct validity of Spanish version of mindfulness is concurrent with the findings of the English version and Cronbach's alpha reliability coefficient was 0.89, split half reliability with Spearman-Brown formula was 0.86 and test-retest reliability was 0.82 within two weeks. Convergent validity of mindfulness was positively correlated with five facets mindfulness questionnaire (FFMQ) and $r=0.55$ in terms of divergent validity in Center for Epidemiologic Studies Depression (CES-D) Scale (Soler, Tejedor, Feliu-Soler, Pascual, Cebolla & et al, 2012). The construct validity of the Turkish version of mindfulness has also been verified and Cronbach's alpha reliability coefficient was 0.80 and test-retest reliability of it was 0.86 (Özyesil, Arslan, Kesici & Deniz, 2011). The other study emphasized on the differences between the Turkish and English versions mean grades (Özyesil, 2012). The only research that has been done on the Persian version is the study by Abdi, Taban & Ghaemian (2012) in which a Cronbach's alpha reliability coefficient of mindfulness is 0.76.

Although the mindfulness was evaluated in different countries (such as China, Turkey, UK) in terms of psychometric indices (Brown & Ryan, 2003; Özyesil & et al, 2011; Black, Sussman, Johnson & Milam, 2012; Brown, West, Loverich, Biegel, 2011), limited and independent studies have been done in Iran in this regard. On the other hand, since different clinical mindfulness interventions is used for different age groups of youth (Broderick & Jennings, 2012) and elderly (Morone, Greco, Rollman, Moore, Lane & et al, 2012). So, having the appropriate tools to accurately assess mindfulness trait can be useful in Iranian studies. Accordingly, the present study was done to determine the psychometric measures of mindfulness among samples taken from Tabriz University of Medical Sciences.

Method

The study is descriptive-correlation and applied study. The population of this study consists of all undergraduate students of Tabriz University of Medical Sciences in the academic year of 1391-1392. Due to the large statistical population, the sample size was estimated using the Cochran formula. Thus, 383 students were selected from different colleges and universities as random clustering.

Inclusion & exclusion Criteria

Bachelor student at Tabriz University of medical sciences, Lack of having severe mental and physical problems as being a member at welfare organization, lack of continued probation in two semester were considered as the inclusion criteria. Incorrect completion of research questionnaires leads to excluding the study.

Instruments

Mindful Attention Awareness Scale(MAAS)

Mindfulness Scale (Brown & Ryan, 2003) is a single-factor 15-item questionnaire which assesses the quality of mindfulness. Scoring is done positively and with six-point scale (1 = almost always to 6 = almost never). The minimum and maximum scores of each individual in the scale are 15 to 90. Mindfulness Validity scale manufacturers, have extracted single-factor construct in MAAS structure and report MAAS reliability in university sample as 0.82 (Brown & Ryan, 2003).

Cognitive emotion regulation Questionnaire (CERQ)

Cognitive regulation Questionnaire (Garnefski, Kraaij & Spinhoven, 2001) has 36 items and includes nine subscales which classified in two general subscales (compatible cognitive regulation styles and incompatible cognitive emotion regulation styles). Compatible Cognitive emotion regulation styles include 5 subscales (acceptance, positive refocusing, refocusing on planning, positive reappraisal, and coping with views) and incompatible cognitive emotion regulation styles include four subscales (self-blame, rumination, catastrophizing, others blaming) that evaluates the abnormal and normal cognitive coping strategies. CERQ scoring occurs in five degree Likert scale (1= almost never to 5= almost always). Construct validity of CERQ was confirmed and reliability in Cronbach's alpha coefficient for each subscale was reported higher than 0.68 to 0.83 (Garnefski & et al, 2001). The validity of the Persian version of cognitive emotion regulation questionnaire construct has been confirmed by confirmatory factor analysis and its Reliability by Cronbach's alpha coefficient for each subscale has been reported between 0.64 to 0.82 (Abdi & et al, 2012).

Eysenck Personality Questionnaire- Revised short form (EPQR-S)

The Revised Eysenck Personality Questionnaire short form (Eysenck and Barratt, 1985) is a 48-item self-report "yes" and "no" test which is used to measure three dimensions of personality; neuroticism, extraversion and psychosis. Each of the three dimensions consists of 12 items. EPQR-S also has a polygraph scale which measures well exponential trend and includes next 12 items. Eysenck Personality Questionnaire-Revised internal consistency using Cronbach's alpha coefficient has been reported 0.77 for the extraversion scale, 0.74 for neuroticism scale, and 0.52 for psychosis scale (Bakhshpour & Bagherian, 2006).

Spielberger Trait Anxiety Inventory (STAI-X)

State-Trait Anxiety Inventory (Spielberger et al, 1983) is a 40-item scale that consists of two subscales, each consisting of 20 articles. In this study, only the trait anxiety subscale was used. The answer to this question

is on a four-point scale (1= almost never to 4= almost always). The sensitivity and specificity of state-trait anxiety inventory to measure anxiety disorders has been reported as, 0.82 and 0.88, respectively (Kvaal, Ulstein, Nordhus& Engedal, 2005) and the validity of both the subscales has been reported as 0.90 (NasiriAmiri, Mohamadpour, Salmalian&Ahmadi, 2010).

Beck Depression Inventory (BDI-II)

Beck Depression Inventory (Beck et al, 1996) is a 21-item self-report instrument, Responses to each item includes 4 or 5 depression symptoms which, measures high sensitivity to cognitive, affective, and motivational psychomotor depression. Beck Depression Inventory scoring occurs on a four-point scale (0 to 3). Reliability with Cronbach's alpha coefficient was 90% (Raes, 2010) and test-retest reliability and Cronbach's alpha Persian version has been reported respectively as 0.89 and 0.91 (Fata, Birashk, AtefVahid&Dabson, 2005).

Goldberg's General Health Questionnaire (GHQ)

General Health Questionnaire (Goldberg, 1972) is a 28-item self-report instrument that is used to track those with a mental disorders. GHQ has four subscales including somatic symptoms, anxiety and insomnia, social functioning and severe depression. Its scoring occurs using a 4-point Likert scale (0= none to 3= much more than usual). In the Noorbala, Bagheri Yazdi, Yasamy& Mohammad (2004) study, reliability with Cronbach's alpha coefficient method has been reported as 0.83.

Procedure

The preparation of Persian version of MAAS was done as follows: at first a bilingual translation (Persian/English) translated it to Persian. Then it is retranslated from Persian to English by another bilingual translator. The validity of translation and final decision-making of Persian translation was done with research team's opinion.

Statistical methods

Statistical analysis was performed using the software SPSS (version 21). Descriptive statistics (mean, standard deviation, frequency and percent) was used to describe the variables. Pearson's correlation coefficient was used to measure mindfulness scale concurrent validity simultaneous with the General Health Questionnaire, the Beck Depression Inventory, Trait Anxiety scale and characteristics of the Eysenck Personality Questionnaire. Power values less than 0.05 was considered as significant.

Results

Due to the inclusion and exclusion criteria of the study, 21 students were excluded before statistical analysis. Finally, 383 students participated in the final analysis. 181 students (47.3 %) were male and 202 (52.7%) were female. The mean age of the students was 21.26 with a standard deviation of 1.95. 169 students (44.1 percent) were Azari, 134 (35%) were Fars and 80 persons (20.9 percent) were Kurds.

Convergent and divergent validity

Concurrent validity of the results showed that, maladaptive cognitive emotion regulation, psychosis and personality factors neuroticism, Beck Depression Inventory, Trait Anxiety Inventory, Inventory and mental health subscales of the divergent validity (negative correlation) between mindfulness scale were -0.27 to -0.39 (P<0.01). Also the convergent validity (positive correlation) between adaptive cognitive emotion regulation and mindfulness scale was $r=0.25$ (P<0.01). There was no statistically significant relationship between extroversion and mindfulness scale (Table 1).

Table 1. Mean and standard deviation of variables and concurrent validity of using the Pearson correlation coefficient

Variables	Pearson correlation MAAS	Mean	SD
MAAS	1	62.65	9.03
Adjusted CERQ	0.25**	66.14	10.52
Unadjusted CERQ	0.34**	48.85	7.99
psychosis	0.28**	2.70	1.55
extraversion	0.08	7.50	2.73
neuroticism	-0.30**	6.91	2.31
BDI-II	-0.35**	10.94	8.64
STAI-X	-0.31**	16.20	11.17
GHQ	-0.39**	21.22	12.09
somatic symptoms	-0.27**	5.22	3.24
anxiety& insomnia	-0.32**	5.37	4
social functioning	-0.32**	6.94	3.44
severe depression	-0.35**	3.70	4.13

**P<0.01

Reliability

Reliability using Cronbach's alpha for the females was 0.75 and it was 0.74 for males and total reliability was 0.76. Correlation between the two forms of parallelism was 0.54. The test-retest reliability in a sample of 31 students was obtained at 0.71 in 17 days interval.

Demographic and mindfulness characteristics

Mean and standard deviation of MAAS scores at male students were from 61.44 ± 8.71 and it was 63.73 ± 9.20 for female students. Based on the results of independent t test, there was a significant statistical difference in the mean scores MAAS between males and females, So that, girls has more mindfulness ($t=2.48$, $df=381$, $P<0.05$).

The Pearson correlation coefficient showed that there was no statistically significant correlation between the age of the students and MAAS ($r=0.01$, $P>0.05$).

The mean and standard deviation of MAAS scores among Azeri students were 9.10 ± 62.43 , and Fars students were 8.96 ± 63.79 and Kurd students were 8.88 ± 61.20 , respectively. Based on the results of one-way ANOVA analysis of variance there were no statistically significant differences in the mean scores of mindfulness among students of different ethnical groups ($F_{(2,382)}=2.15$, $P=-0.11$).

Discussion

The study was performed to determine the validity and reliability of the Persian version of mindfulness among students in the Tabriz University of Medical Sciences, and it Showed that mindfulness scale occurred from convergent validity with the cognitive regulation of extraversion and emotional adjustment. Also the scale of mindfulness occurred from the validity of divergence with maladaptive cognitive emotion regulation, psychosis and personality factors neuroticism, Beck Depression Inventory, Trait Anxiety Inventory, General Health Questionnaire. This finding indicates the relevance of mindfulness scale with wide importance of cognitive and affective aspects. So the Persian version is well able to be consistent with the concept of mindfulness which in various studies emphasized on the relationship between mindfulness scale and mental health (Brown & Ryan, 2003; Carlson & Brown, 2005; Soler & et al, 2012; Özyesil & et al, 2011; Abdi & et al, 2012; and Abdi, Babapour & Saderi Oskouei, 2009).

The results showed that the reliability measure of mindfulness is well. Results of previous studies have been reported on good to excellent reliability, from 0.76 to 0.93 (Soler & et al, 2012; Özyesil & et al, 2011; Black & et al, 2012; Abdi & et al, 2009; Cebolla, Luciano, DeMarzo, Navarro-Gil, Campayo, 2013; and Araya-Vargasa, Gapper-Morrowb, Moncada-Jiménez & Buckworth, 2009). According to the results, psychometric indices of reliability and validity are reliable and have applied and research use in the field of mental health.

Although the results of studies in other countries show the convergence of findings about the psychometric properties of the mindfulness scale, review on studies shows that the mean scores of mindfulness in different social groups varies (e.g., students and adults in the general population) (Brown & Ryan, 2003) And even it is different between the Turkish and English language version (Özyesil & et al, 2011). Accordingly, given that in Persian version there was no difference among Persians, Azeri's and Kurd students in Iran; it is possible to have implications on the performance of the Persian version, regardless of the ethnical groups. On the other hand, females having higher scores could have implications on the consciousness of their emotional states.

Because there are many questionnaires in this study, using data from this study to evaluate construct validity could not be accurate, accordingly, the absence of other validity indicators such as the structural validity and diagnostic validity, social people sample, other Iranian peoples, are considered as the limitations of this study, which, stresses the need for further studies.

Conflict of interest

The results of this study are not associated with the material interests of the authors.

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