

Standardization of a Short-Form of the Metacognition Questionnaire (MCQ-30) in Students

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ABSTRACT:

The role and importance of meta-cognitive beliefs in creating and retaining of mental disorders were explained initially in meta-cognitive theory of Wells. The purpose of this study was to Standardization of a Short-Form of the Metacognition Questionnaire (MCQ-30) in Students. This was a standardized study. A sample of 459 people (including 233 females and 226 males) was selected by cluster random sampling from different faculties of the University of Tehran. The reliability of the Metacognition Questionnaire (MCQ-30) was analyzed using Cronbach's alpha and retest method with a 1 month interval and its correlation coefficients were 0.921 and between 0.75 and 0/93 at significant level ($P < 0.001$) respectively. Validity of the (MCQ-30) was estimated using factor analysis and construct validity method with implementation of (STAI) questionnaire. There was a positive and significant correlation coefficient between the (MCQ-30) and (STAI) questionnaires (0.767) at significant level ($P < 0.001$). Also, a separate standard table for each group of male and female students was calculated. The Iranian version of the Metacognition Questionnaire (MCQ-30) is both highly reliable and valid for use with Iranian students.

Keywords:

Standardization, Metacognition Questionnaire, Students

INTRODUCTION

Flavel (1988) first examined the subject of cognitive awareness under a new concept called metacognition to describe one's knowledge of cognitive processes and products or anything related to it. According to Flowwell, metacognition is personal knowledge of cognitive processes and outputs or anything else related to it (Dehrati, 2009). Research on metacognitive strategies, their components, and their impact on behavior began when Wells et al. Introduced the role of metacognition in the etiology of mental disorders (Fergus and Barden, 2016).

Metacognition describes a range of interconnected factors that include the knowledge or cognitive processes involved in interpreting, monitoring, or controlling cognition. Metacognition can be divided into three areas: metacognitive knowledge, metacognitive experiences, and metacognitive strategies (McAvoy et al., 2015). In the metacognitive

approach, the main assumption is that beliefs in psychological disorders include metacognitive components that guide the coping style and thinking activity of individuals. Metacognitive beliefs are the key and guide that affect the way people respond to negative thoughts, beliefs, symptoms and emotions and are the driving force behind the poisonous thinking pattern that leads to psychological and emotional suffering (Solm et al., 2015).

Wells and Matthews (1994) provide a self-regulatory model of executive function for mental disorders. This model expresses multiple cognitive interactions including beliefs, metacognitions, attention control, continuous processing, and self-regulation. The S-REF model is structured based on the interaction of three levels of cognition (Fisher and Wells, 2009). Formatting (S-REF) is closely related to its processing. This type of processing provides goal-based executive performance to reduce its inconsistency. The discrepancy itself is the difference between the tools of

existing situations and the tools of nature or desire. Periods of activity (S-REF) are short under normal conditions. In this situation, the person is able to choose appropriate coping strategies to cope with the inconsistency. These strategies are performed both through problem-oriented coping and through belief correction, but in personal psychological disorders, the individual is unable to achieve self-regulatory goals and thus the formation (S-REF) remains constant (Batmaz, 2014). The main features of this model are: 1- Positive metacognitive beliefs about the need for rumination as a way to overcome negative emotions and addiction and find a solution for them. Negative metacognitive beliefs about rumination uncontrollability, psychological vulnerability, and the risk of addiction experiences. 3- Reducing meta-awareness of rumination. 4- Cognitive-attention syndrome (rumination, threat monitoring, and maladaptive coping behaviors) (Spada et al., 2015). The metacognitive model provides a cognitive framework to understand how multiple levels of cognition, behavior, and their components are dynamically perpetuating and changing interaction disorder (Farnay et al., 2016).

Based on this, psychologists have tried to create questionnaires to measure metacognitive beliefs in healthy people and people with emotional disorders. Wells and Katright and Hutton (1997) developed the Metacognition Questionnaire (MCQ) to assess metacognitive beliefs based on their self-regulatory executive action model. The Metacognitive Belief Questionnaire was developed to assess interpersonal differences about positive and negative beliefs about anxiety and disturbing thoughts. Another reason for making this questionnaire was to evaluate metacognitive monitoring and judge cognitive efficiency. The Metacognition Questionnaire (MCQ) consisted of 5 factors that were measured by a total of 65 items. These 5 factors (subscales) measured the following metacognitive dimensions: 1- Positive beliefs about worry (eg, worry helps me deal with problems), 2- Negative beliefs about worry that focus on the impossible Being restrained and dangerous is a concern (e.g., I can no longer stop when I'm worried), 3. Low cognitive confidence (e.g., I have poor memory), 4. Negative beliefs about thoughts that include these beliefs The following are: superstitions, punishment, responsibility and the need to control (for example, the inability to control my thoughts is a sign of weakness), 5- Cognitive awareness (for example, I pay close attention to how my mind works). Research shows acceptable validity and reliability for this scale (Spada, Mohidini and Wells, 2008).

Wells and Katright-Hutton (2004) developed a short metacognition questionnaire due to the length of the Metacognition Questionnaire (MCQ). The Short Form Metacognition Questionnaire (MCQ-30), like the main form, consists of 5 factors and includes 30 items selected from the main scale items. Studies to determine

the factor structure have reported the validity and reliability of the Metacognition Questionnaire (MCQ-30) (Wells, 2009). Correlation studies have shown that the metacognitive beliefs of the Metacognition Questionnaire (MCQ-30) are positively and significantly associated with the symptoms of a large number of psychological disorders (Batmaz, 2014).

Since metacognition and its components play a major role in the etiology, persistence and development of mental disorders, the aim of this study is to standardize the short form of the Welsh Metacognition Questionnaire for Iranian students, a tool available to researchers, psychologists, psychiatrists and therapists. And ... to be able to be effective in diagnosing, preventing and treating psychological disorders.

Methodology

The research method used in this study is descriptive and exploratory based on psychometric methods in which the standardization of metacognition questionnaire was determined.

Population, sample and sampling method

The statistical population of this study is all undergraduate students of the University of Tehran who were studying in 2017-1997. Using multi-stage sampling, 459 people were selected and a questionnaire was administered to them. In sampling, faculties and disciplines were included in the sample, then classes and finally, students were randomly selected. The subjects were satisfied to participate in the test and those who were interested in cooperating in the study participated in the study.

Research tools

In this study, two measurement tools were used, which were:

Short Form Metacognition Questionnaire (MCQ-30): The short form of the Metacognition Questionnaire is designed for metacognitive beliefs. This questionnaire has 30 items and each subject answers the items in four options (1 = I do not agree to 4 = I strongly agree). This questionnaire measures five components of cognitive trust, positive beliefs about worry, cognitive self-awareness, negative beliefs about uncontrollable thoughts and danger, and beliefs about the need to control thoughts. Cronbach's alpha coefficient of this questionnaire and its components ranged from 0.72 to 0.93 and the validity coefficient of the test was 0.73 (Wells and Katright-Hutton, 2004).

State-Trait Anxiety Inventory (STAI): This questionnaire has 40 items in 2 scales of overt anxiety and latent anxiety. Each section has 20 items that are scored using the Likert scale with a range from 1 (almost never) to 4 (always), according to which each participant in this scale gets a score between 20 and 40, which Indicates his level of anxiety (Spielberger et al.,

2001). The authors of this questionnaire reported the Cronbach's alpha coefficient of the Trait Anxiety Scale for students as 0.86. A study obtained the validity of this questionnaire through Cronbach's alpha on a state scale for 0.91 female students and 0.89 for males. This coefficient on the anxiety trait scale was 0.89 and 0.91 for female subjects and 0.87 and 0.89 for male subjects, respectively. Cronbach's alpha coefficient of the general scale in this study was 0.95, in the state anxiety scale 0.91 and in the trait anxiety scale 0.91 (Panahi Shahri, 1999). The choice of state-attribute anxiety scale for concurrent validity was due to two reasons: Correlation between the two questionnaires can indicate validity. B) Another reason for choosing the State-Trait Anxiety Scale was that the main constructors examined the

concurrent validity of the metacognition questionnaire with trait anxiety. Because the researcher's goal here was to obtain simultaneous validity for the metacognition questionnaire, it was preferred to be examined in Iran as well.

Findings

Data from the present study on 459 people (including 233 girls and 226 boys) were analyzed using SPSS. Table 1 presents the descriptive characteristics of the performance of all subjects in the Wells Metacognition Questionnaire based on central indicators and dispersion.

Table 1: Central indicators and scatter of total subjects' scores in the metacognition questionnaire

FEMAILE	MAILE	TOTAL	
233	226	459	NUMBER
128/87	136/78	131/62	AVERAGE
1/017	1/654	0/876	MEAN STANDARD ERROR
19/65	23/76	21/43	STANDARD DEVISION
321/907	578/876	456/654	VARIANCE
82	79	79	MINIMUM
187	199	199	MAXIMUM

To estimate the validity of the research tool, two methods of general formula of Cronbach's alpha coefficient and retest with a time interval of 1 month were used. First, for a total of 30 questions and all

subscales, internal consistency (Cronbach's alpha) was calculated separately for male and female students.

Table 2: Cronbach's alpha calculated for two groups of male and female students in 5 scales and total scale (MCQ-30)

FEMALE CRONBACHS ALPHA	MALE CRONBACHS ALPHA	CRONBACHS ALPHA	NUM.OF.ITEMS	SUBSCALES
0/76	0/75	0/76	6	Positive beliefs about worry
0/75	0/81	0/75	6	Uncontrollability and danger
0/77	0/92	0/85	6	Cognitive reassurance
0/89	0/72	0/68	6	Need to control thoughts
0/91	0/78	0/79	6	Cognitive self-awareness
0/899	0/843	0/921	30	Total

To ensure validity, the test was performed again on 50 people at one month intervals and the results showed that the validity of the retest for 5 scales is between 0.75 and 0.93. Criteria validity was used to obtain the validity of the questionnaire. Thus, at the same time with the implementation of the metacognition questionnaire (MCQ-30), the trait-state

anxiety questionnaire (STAI) was also performed on 150 people and there was a significant correlation at the level (P <0.01) between the subscales of the two questionnaires. The following was obtained:

Table 3: Correlation table between total scores of Metacognitive Questionnaire (MCQ-30) Trait-Mode Anxiety Scale (STAI)

COGNITIVE SELF-AWARENESS	NEED TO CONTROL THOUGHTS	COGNITIVE REASSURANCE	UNCONTROLLABILITY & DANGER	POSITIVE BELIEFS ABOUT WORRY	METACOGNITION QUESTIONNAIRES) MCQ-30(SCALE State-Trait Anxiety Inventory) STAI(
0/769	0/867	0/758	0/567	0/677	0/767	

In response to the question whether the 5 scales of the metacognition questionnaire measure a single structure, the correlation between the 5 scales at the level (P <0.001) was calculated and the results are given in Table 4.

POSITIVE BELIEFS ABOUT WORRY	SCALES				
-	-	-	-	1	POSITIVE BELIEFS ABOUT WORRY
-	-	-	1	0/466	UNCONTROLLABILITY & DANGER
-	-	1	-/578	0/487	COGNITIVE REASSURANCE
-	1	0/698	0/512	0/567	NEED TO CONTROL THOUGHTS
1	0/467	0/545	0/478	0/491	COGNITIVE SELF-AWARENESS

To test whether there is a significant difference between the scores of male and female students, t-test was used. The results showed that there was a significant difference in the level (P <0.01) between the scales of uncontrollability and risk, the need to

control thoughts and cognitive self-awareness in the scores of female and male students and in all cases mentioned above the scores of female students higher than The students were boys. According to the following statistical results, a separate soft table was calculated for each group of male and female students.

Table 5: t-test results for two groups of male and female students and statistical indicators for each scale (MCQ-30) separately

CALCULATED T	S	n		GENDER	SCALES
NO	5/3	226	10/65	MALE	POSITIVE BELIEFS ABOUT WORRY
MEANINIG	5/76	233	11/43	FEMALE	
3/478	4/76	226	5/78	MALE	UNCONTROLLABILITY & DANGER
	5/34	233	6/93	FEMALE	
NO	5/33	226	8/76	MALE	COGNITIVE REASSURANCE
MEANINIG	6/08	233	6/11	FEMALE	
4/45	4/44	226	4/48	MALE	NEED TO CONTROL THOUGHTS
	4/89	233	5/15	FEMALE	

2/99	3/11 3/87	226 233	2/89 3/55	MALE FEMALE	COGNITIVE SELF- AWARENESS
3/18	28/43 33/65	226 233	52/87 61/78	MALE FEMALE	MCQ

Discussion

The aim of this study was to investigate the psychometric properties and standardization of the short form of metacognition questionnaire (MCQ-30) in Iranian students. The results of validity and reliability test showed that the metacognition questionnaire (MCQ-30) has good validity and reliability. By comparing the validity obtained from this research and previous researches, it was concluded that this short form can be used as a suitable tool to show the mental status of students. In this study, the maximum validity (internal consistency) for the cognitive confidence scale was 0.85 and the minimum was 0.68 for the need to control thoughts and all items was 0.921, and to ensure the validity, the test was repeated again at one month intervals. 50 people were performed and the results showed that the validity of the retest for 5 scales is between 0.75 to 0.93, which is consistent with the results of research by Wells and Cartwright-Hutton (2004), Spada, Mohi-ud-Din and Wells (2008) Wells et al. (2008) and Shirinzadeh Dastgiri et al. (2009), Rabbani Baojdan et al. (2012). In the study by Wells and Cartwright-Hutton (2004), the Cronbach's alpha range for subscales ranged from 0.72 to 0.93. The test-retest correlation coefficient of this questionnaire, which was conducted between 22 and 118 days, is as follows: total scores equal to 0.75, positive beliefs about concern equal to 0.79, negative beliefs about uncontrollability and risk They reported anxiety equal to 0.59, cognitive confidence equal to 0.69, need for thought control equal to 0.74 and cognitive self-awareness equal to 0.87. In terms of construct validity, a positive and significant relationship between this questionnaire and related subscales and characteristics has been shown and its factor structure has been confirmed.

Criteria validity was used to obtain the validity of the questionnaire. Thus, at the same time with the implementation of the metacognition questionnaire (MCQ-30), the trait-state anxiety questionnaire (STAI) was also performed on 150 people and a significant correlation of 0.767 at the level ($P < 0.01$) between the two subscales Questionnaire was obtained. Also, in comparing the mean scores of male and female students, it was observed that there was a significant difference between the means of uncontrollability and risk, need for thought control and cognitive self-awareness, and in all cases, the mean scores of female students were higher than male students.

In general, it can be concluded that the Persian version of the short form of metacognition questionnaire (MCQ-30) has satisfactory reliability and validity. Finally, the most important limitation of this study was the calculation of reliability and validity on a group of students that is proposed to be performed on other age, educational and ethnic groups.

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