Psychometric Properties of the Arabic Version of the Obsessive Compulsive Beliefs Questionnaire-44 in a Student Population

Maryam Rahat, MA[1]
Changiz Rahimi, PhD[1]
Norolah Mohamadi, PhD[1]

1 Department of Clinical Psychology, Shiraz University, Shiraz, Iran

Corresponding author:
Changiz Rahimi, PhD
Assistant Professor, Department of Clinical Psychology, Shiraz University, Shiraz, Eram Hill, Shiraz, Iran.
Tel: +98 (711) 2334479
Fax: +98 (711) 2334479
Email: crahimi@hotmail.com

Objective: We examined the psychometric properties of the Arabic version of the Obsessive Compulsive Beliefs Questionnaire-44 (OBQ-44) in a sample of Kuwait University students. This questionnaire was developed by the Obsessive Compulsive Cognitions Working Group in order to assess belief domains believed to be crucial in the development of obsessive compulsive symptoms.

Method: The Arabic version of the OBQ-44 was developed according to the standard translation and back-translation methods. The Arabic versions of the OBQ-44, the Maudsley Obsessive - Compulsive Inventory (MOCI), and Beck Depression Inventory-Revised (BDI-II) were then administered on a sample of 200 Kuwait University students from the faculty of humanities chosen through random cluster sampling. Retest was administered within a 4 week time period.

Results: The results of principle component factor analysis with varimax rotation indicated 6 factors which overlapped to a high degree. A 3 factor solution was chosen based on the scree plot and factor loadings which explained 36.12% of the variance. The factors were labeled as responsibility and threat estimation (RT), importance and control of thought (ICT) and perfectionism/Certainty (PC). The reliability coefficient of the three factors and the total score were assessed using three methods: Internal consistency, Test-retest reliability and Split-half reliability. Results showed an acceptable internal consistency for the Arabic version of the OBQ-44. Regarding the validity of OBQ-44, the instrument correlated with the total score of MOCI and most of its subscales .

Conclusion: These data support the reliability and validity of the OBQ-44 in a sample of Kuwait University students.

Key words: *Arabs, Obsessive Compulsive Disorder, Psychometrics, Questionnaire, Reproducibility of results*

Obsessive compulsive disorder is an anxiety disorder with a prevalence rate of about 2.5% (1). Studies in different societies have reported different prevalence rates. Over the last decade, extensive research has been conducted on the cognitive etiology and the causes of persistence and severity of obsessions and compulsions on numerous clinical and non-clinical populations and cultures using a wide range of techniques and instruments, which has yielded a rich empirical and theoretical background.

Theories derived from recent cognitive researches can be divided into two broad ranges: theories that propose a dysfunction in cognitive processes as the cause of Obsessive – Compulsive Disorder (OCD) such as the inability to autonomously organize data, poor executive functioning and memory; and theories which indicate dysfunctional beliefs and appraisals as the cause (2). In the later group of theories, a large number of different cognitive beliefs and appraisals has been the focus of extensive studies over the years and it is hypothesized that the presence of these constructs and appraisals leads to the persistence and severity of normal obsessions experienced by the general population (2). These research findings have repeatedly indicated a relation between these cognitive appraisals and beliefs and the development and maintenance of OCD symptoms. Some of the extensively studied appraisals and beliefs include inflated responsibility (3), thought-action fusion, over importance of thoughts, control of thoughts (4-6), intolerance of uncertainty, and perfectionism (7, 8). These theoretical frame works have been the basis of treatment approaches which targeted changes in cognitive constructs in order to produce changes in the behavior of the OCD patients. Each of these beliefs was assessed using a different instrument which proved to be an obstacle in the process of comparing the data. Therefore, the availability of a single, reliable, and valid instrument that can be used to test the hypothesis based on cognitive models, presented itself as a need.

Ultimately, the Obsessive Compulsive Cognitions Working Group (OCCWG) (9) developed Obsessive Beliefs Questionnaire (OBQ-44), which was a theoretically driven 129 item measure to assess all constructs believed to be core in OCD (9). This scale was later changed into an 87 item and a brief 44 item scale and subsequently reliability and validity research were conducted (10, 11). This questionnaire has been translated to many different languages and is being utilized in different cultures and in cross cultural comparisons as well. The present study aims at presenting an Arabic version of the OBQ-44 and assessing its psychometric properties in a student population in Kuwait.

Materials and Method
Participants
Two hundred students were recruited through the process of random cluster sampling from Kuwait University who volunteered to anonymously complete a battery of questionnaires. Sampling was conducted in the faculty of humanities of Kuwait University. Initially, a list of all majors and the classes of each major during that semester were acquired from the administration office. Then, a major was randomly selected and within that major a class was randomly selected and a list of all students registering in that class was acquired. The professor conducting the randomly selected class was contacted in order to schedule an appropriate time for the administration of the research questionnaires. The questionnaire was given to every member of the class. Participation was optional and those unwilling to participate were instructed to return the questionnaire empty. However, the names of those who did participate were checked in the list upon handing in the questionnaire in order to obtain an optional extra credit offered by the professors. This process continued until the sample reached the targeted size of 200 participants. Kuwait University does in some instances hold classes that are segregated by gender and a number of those classes were randomly included in the sample. Moreover, female students did compose a larger percentage of student population in specific faculties such as humanities due to cultural reasons. Therefore, a difference is evident between the female and male sample size. The age range of the subjects was 18 to 30 years; of the subjects, 71.5% were female and 28.5% were male. Participation in the study was voluntary and the students were offered credits for their participation. All participants were presented with the same information about the purpose of the study. A retest was administered in 4 weeks on a group of volunteers.

Measures
Arabic version of the Obsessive Beliefs Questionnaire-44: The Arabic version of the Obsessive Beliefs Questionnaire-44 was prepared by the researchers and validity and reliability testing were administered. The English version of the OBQ-44 was developed by the

OCCWG as a measurement to assess beliefs that predispose an individual to develop obsessive compulsive symptoms. The instrument includes 44 items which require the participant to rate from 0 to 7 based on the level of their agreement with the content. OBQ-44 assesses 3 domains of cognitive beliefs which are responsibility/threat estimation with 16 items, perfectionism/certainty with 16 items and control/importance of thoughts with 12 items. Factors are moderately inter-correlated (r= 0.42 to 0.52). Internal consistency of each factor is 0.93, 0.89 and 0.95 respectively.

The OBQ-44 was initially translated to Arabic by one of the researchers who is a bilingual psychologist and familiar with the language, culture and academic terminology of both cultures. The services of an independent professional practicing translator were also acquired through an accredited translation office in order to obtain an independent version of the translation which reflects the language used by the non-academic population. The two different versions of the translation were then compared by the researchers in order to study and highlight the discrepancies and reach a consensus on a unified version and eliminate poor phrasing. This corrected unified version was then discussed with the professional translator and was approved as an equivalent to the original English version. Later, twenty students were selected from the faculty of psychology and were asked to complete the questionnaire and were later interviewed about their understanding of each item. Then, the items which proved to be ambiguous were further edited. The final version was subsequently translated by a different professional practicing translator to English and was compared with the original version in order to establish whether each individual item is equivalent in meaning to the original and whether any gross conceptual differences existed. Final corrections were performed and discussed amongst researchers and translators .

The Arabic version of Maudsley's Obsessive Compulsive Inventory (MOCI): This inventory was developed by Hodgson and Rachman (12) and consists of thirty yes/no items and is intended to assess obsessive-compulsive symptoms and rituals. The English version of the MOCI consists of four factors labeled as Checking, Washing, Slowness and Doubt. The psychometric properties of the Arabic version of MOCI have been reported in other studies (13, 14). The Arabic version of the questionnaire consists of three factors of checking, thought control and slowness. Alpha Cronbach coefficient was estimated at 0.53 for the entire questionnaire and 0.50, 0.58 and 0.46 for the three factors consecutively. Reliability was assessed at 0.55 for the whole questionnaire and 0.49, 0.40, and 0.53 for the three subscales consecutively. Split half reliability was assessed at 0.22 for the whole scale and 0.55, 0.63, and 0.47 for the three subscales consecutively.

The Arabic Version of Beck's Depression Inventory – II (BDI-II): It is a 21 item inventory which measures

the severity of self-reported depression over the last two weeks; its item content corresponds to criteria for the diagnosis of depressive disorders as specified in the DSM–IV. It is the items that are structured on a 4-point scale ranging from 0 (Symptom not present) to 3 (Symptom strongly present). The BDI-II total scores ranging from 0 to 13 represent normal to minimal depression; total scores from 14 to 19 are mild; total scores from 20 to 28 are moderate; and total scores from 29 to 63 are severe (15). The Arabic version was prepared by Ghareeb (16) and psychometric properties were assessed in 17 Arabic countries. They have reported acceptable validity and reliability for BDI-II in Arabic countries. Alpha Cronbach ranged from 0.82 to 0.93 in these countries (17) .

Statistical Analyses

Data were analyzed using SPSS statistical software. The evaluations of the psychometric properties of the OBQ-44 were as follows: Descriptive statistics were calculated; item difficulty was assessed; an exploratory factor analysis with varimax rotation was conducted; and reliability was assessed using internal consistency, test-retest and split half methods. Convergent validity of the questionnaire was assessed by calculating the correlation between OBQ-44 scores and scores on MOCI.

Results

Descriptive statistics

Means and standard deviations of the subscales of the OBQ-44, MOCI and BDI-II for the total sample and also for males and females are presented in Table 1. The females had higher means than males in all subscales of OBQ-44. However, when the subjects were compared using independent t-test, no significant differences were observed between two groups. Regarding the MOCI, the females showed higher mean scores than males in all subscales, except for subscale washing. However, no significant differences were found between the subjects. Females had significantly higher scores on BDI-II than males (t=-3.21, p<0.002).

Factor Analysis

The questionnaire items were initially analyzed by assessing item difficulty and item discrimination. Item difficulty was calculated by dividing each item mean to 7 and multiplying it by 100. Item discrimination was also assessed by calculation item-corrected total correlations; and subsequently items number 3, 4, 5, 6, 8, 11, 14, 23, 28, 31 and 37 were deleted from further data analysis. In absence of any empirically driven data for the Arabic version of the OBQ-44, an exploratory factor analysis with varimax rotation was conducted. Significant loading was determined as >0.35 according to the Overall and Klett's criterion (18). The KMO index was 0.834 and Bartlette test of sphericity was significant (p<0.001), meaning that the sample was representative and correlation matrix was suitable for factor analysis (19). Results indicated a total of 10

components with eigenvalues higher than 1 which accounted for 61.39% of the variance (Table 2). The scree plot, factor loadings and Kaiser's coefficient alpha of generalize ability were considered in identifying the optimal number of factors.

The scree plot indicated a significant decrease after the third component which levels off after the 6th component (Figure 1). Eigenvalues were very low after the 6th component. Results indicated 6 components; however, due to the high overlap between the components a three factor solution was chosen which accounted for 34.66% of data variance. A confirmatory factor analysis was conducted with varimax rotation for a three factor solution. The first factor accounted for 22.43% of the variance which was significantly higher than other factors. The second factor accounted for 6.26%, while the third factor accounted for 5.98% of the total variance. Content analysis indicated 3 factors including responsibility and threat estimation (RT), importance and control of thoughts (ICT) and perfectionism/ Certainty (PC). The original English version consists of items which theoretically reflect six cognitive domains believed to be associated with compulsive symptoms which are responsibility, over estimation of threat, perfectionism, intolerance for certainty, importance of thoughts and control of thoughts. The theoretical background and content of items, the factorial structure and the scoring guidelines of the original English version were studied in order to label the factors of the Arabic version. The results of the factor analysis of the Arabic version indicated that items number 41, 34, 29, 44, 15, 36, 1, 39, 22, 42, 17 and 7 loaded on factor number one. The content of items number 29, 15, 36, 39, 22, 17 reflects responsibility; items number 34, 41 and 1 reflect threat estimation; item number 44 reflects control of thoughts, and items number 42 and 7 reflect importance of thoughts. Therefore, the content of the majority of the items reflected responsibility and over estimation of threat and all items except items number 44, 42 and 7 which are driven from theories that entail the importance of responsibility and threat estimation in the psychopathology of OCD symptoms. Responsibility and threat estimation factors were found to have a high degree of correlation in the original version (OCCWG, 2005). Therefore, the item was labeled responsibility and threat estimation (RT). The second factor consists of items number 30, 21, 38, 32, 25, 24, 27, 40 and 35. Items number 30, 21, 38, 32, 27 reflect importance of thoughts. Items number 25, 40 reflect perfectionism and items number 24 and 35 reflect thought control. The content of the majority of items reflect importance of thought and these items were found to be highly correlated with items related to the control of thoughts (OCCWG, 2005); therefore, it was labeled importance and control of thoughts (ICT). The third factor includes items number 26, 20, 12, 18, 10, 19, 16, 9.

The content of item number 26 reflects the need for certainty, items number 20, 12, 18, 10 and 9 reflect

Table 1. Mean and standard deviation scores of male and female subjects in subscales of Obsessive Beliefs Questionnaire-44 (OBQ-44), Maudsley's Obsessive Compulsive Inventory (MOCI) and BDI-II

Subscales	Male		Female		Total	
	Mean	SD	Mean	SD	Mean	SD
OBQ-44-RT[1]	54.38	13.95	56.49	14.85	55.89	14.60
OBQ-44-ICT[2]	38.64	11.23	39.72	11.74	39.41	11.58
OBQ-44-PC[3]	36.63	7.70	36.90	8.38	36.82	8.17
OBQ-total	129.66	27.11	133.11	28.97	132.13	28.43
MOCI-CHE[4]	2.63	1.24	2.76	1.42	2.73	1.37
MOCI-WA[5]	4.43	1.51	4.32	1.45	4.35	1.46
MOCI-SLO[6]	3.57	1.65	3.76	1.51	3.71	1.55
MOCI-DOU[7]	3.36	1.47	3.67	1.46	3.58	1.47
MOCI-total	13.17	3.50	13.47	3.44	13.39	3.45
BDI-II[8]	10.84	7.29	15.27	9.32	14.01	9.00

1. Responsibility/Threat Estimation, 2. Control/Importance of Thoughts. 3. Perfectionism/ Certainty, 4. Checkinh, 5. Washing, 6. Slowness, 7. Doubt, . Beck Depression Inventory- II.

Table 2: Table of Eigenvalues from the exploratory factor analysis of the Obsessive Beliefs Questionnaire-44 (OBQ-44) factors

Factor	Eigenvalues	Percentage of Variance	Cumulative Percentage of Variance
1	7.40	22.43	22.43
2	2.07	6.26	28.69
3	1.97	5.98	34.67
4	1.58	4.80	39.47
5	٢1.5	4.63	44.10
6	1.35	4.09	48.19
7	1.17	۵3.5	۴51.7
8	1.11	3.38	55.11
9	1.07	3.23	58.35
10	1.01	3.05	61.40

Table 3. OBQ-44 Mean Scores, Standard Deviations, Cronbach's alpha if item deleted for Individual Items and Item-Total Correlations

Item	Mean	SD	Cronbach's Alpha if Item Deleted	Item-total correlation	Item	Mean	SD	Cronbach's Alpha if Item Deleted	Item-total correlation
1	4.10	1.81	0.90	0.35	23	5.48	1.51	0.89	0.46
2	4.78	1.67	0.89	0.36	24	4.90	1.88	0.89	0.43
3	5.96	1.33	0.90	0.29	25	3.00	1.88	0.89	0.53
4	5.46	1.67	0.89	0.37	26	4.88	1.88	0.89	0.44
5	6.17	1.23	0.90	0.30	27	4.66	2.02	0.90	0.33
6	5.40	1.52	0.89	0.37	28	5.84	1.52	0.90	0.31
7	3.21	1.83	0.90	0.30	29	3.84	1.86	0.89	0.44
8	5.18	1.47	0.90	0.36	30	3.68	2.07	0.89	0.50
9	3.91	1.86	0.90	0.31	31	6.14	1.31	0.90	0.33
10	4.82	1.75	0.90	0.32	32	3.74	2.05	0.89	0.41
11	5.78	1.37	0.90	0.29	33	4.80	1.73	0.89	0.50
12	4.19	1.85	0.90	0.33	34	4.72	1.80	0.89	0.43
13	2.81	2.00	0.91	0.24	35	3.88	1.91	0.89	0.42
14	6.13	1.17	0.89	0.37	36	4.53	1.84	0.89	0.60
15	3.86	1.81	0.89	0.40	37	5.95	1.26	0.89	0.37
16	4.68	1.81	0.89	0.38	38	3.60	1.92	0.89	0.43
17	4.41	1.81	0.89	0.41	39	3.56	1.85	0.89	0.45
18	5.02	1.77	0.89	0.36	40	3.64	1.92	0.89	0.46
19	4.92	1.84	0.90	0.33	41	3.84	1.95	0.89	0.50
20	4.40	1.72	0.89	0.40	42	3.54	2.01	0.89	0.46
21	3.52	2.04	0.90	0.37	43	3.20	2.12	0.89	0.43
22	4.22	1.74	0.89	0.57	44	4.06	2.11	0.89	0.22

Table 4. Correlation Coefficients between subscales of Obsessive Beliefs Questionnaire-44 (OBQ-44) with Maudsley's Obsessive Compulsive Inventory (MOCI) and Beck Depression Inventory (BDI-II)

Scales		MOCI-					BDI-II
	Subscales	CHECKING	WASHING	SLOWNESS	DOUBT	TOTAL	TOTAL
OBQ-44	RT[1]	0.487**	0.202*	0.276**	0.403**	0.519**	0.374**
	ICT[2]	0.260**	0.277**	0.250**	0.267**	0.383**	0.153*
	PC[3]	0.368**	0.123	0.279**	0.213*	0.361**	0.099
	total	0.462**	0.252**	0.324**	0.377**	0.526**	0.238**

N =200, ** p< 0.001, * P< 0.01, 1. Responsibility/Threat Estimation, 2 Control/Importance of Thoughts. 3. Perfectionism/ Certainty.

perfectionism and item number 19 and 16 reflect responsibility. The content of the majority of items reflect perfectionism based on which the item was labeled. The third factor was labeled perfectionism/ Certainty (PC).

Reliability statistics
Internal consistency, test-retest reliability and split half reliability of the instrument were calculated. The internal consistency of the subscales using alpha Cronbach is reported at 0.82, 0.79, 0.70 for the three factors and 0.8⁹ for the scale which is considered good internal consistency. Table 3 shows OBQ-44 individual item mean scores, standard deviations, Cronbach's alpha if item deleted and the item-total correlations for the total sample. Item-total correlations ranged from 0.22 to 0.60 and Cronbach's alpha if item deleted ranged from 0.89 to 0.90. The alpha coefficients and the item-total correlations in this study indicated a high level of internal consistency among the items. Split half reliability of the subscales is 0.80, 0.78, 0.69, and 0.76 for the whole scale which is considered a good reliability. Prior to the initial administration of the test, three classrooms were randomly selected from the classrooms that had already been sampled for retesting purposes. Participants were asked to mark papers with either a code or student ID or a name. Four weeks subsequent to the initial administration of the test, retest questionnaires were prepared with the initial mark identifying the participants' identity written on the retest questionnaires, and they were then distributed to the same individuals. A total of 108 questionnaires were handed out and 80 questionnaires were completed without missing items (response rate of 74%). Correlation was 0.81, 0.64 and 0.79 for the subscales and 0.82 for the scale. All test-retest correlations were significant, indicating a good reliability.

Validity statistics
Convergent validity of the questionnaire was assessed by calculating the correlations between OBQ-44 scores and scores on MOCI and BDI-II for a sample of 200 students. Correlations for each individual factor are reported in table 4. OBQ-44 total score has significant correlation with all MOCI factors and the highest correlation was with MOCI checking factor (r=462, p<0.001). OBQ-44 subscales also had significant correlations with MOCI factors, except for

perfectionism/ Certainty and washing. The correlations between BDI-II total score and subscales of OBQ-44 including RT (r=0.374, p<0.001), ICT (r=0.153, p<0.01) were significant except for PC. The correlation between OBQ-44 total score and BDI-II total score (r=0.238, p<0/001) was also significant.

Discussion
The present study investigated the psychometric properties of the Arabic version of the OBQ-44 in a sample of Kuwait University students. According to the data, it is shown to be a reliable and valid tool for assessing obsessive beliefs in student populations in Kuwait. OBQ-44 assesses cognitions and beliefs and is therefore a useful instrument and covers areas not covered by common instruments which focus on symptoms.
Item analysis indicated multiple questions with level of difficulty higher than 70 percent and insufficient discrimination correlations. These items were 3, 4, 5, 6, 8, 11, 14, 25, 28, 31 and 37. A large number of respondents tended to score these items very high and there were not much individual differences in the sample on these items. Items were studied in an attempt to find the reasons. The content of these items are perfectionism, responsibility, and the need for certainty. Items 3 and 5 are rather ambiguous and need further editing or translation. Moreover, further study needs to be conducted on the remaining items.
The factorial structure of the questionnaire was assessed using component factor analysis with varimax rotation. Data indicated the existence of 6 overlapping factors which were reduced to three due to high level of overlap based on scree plot and factor loadings. A confirmatory factor analysis was conducted with varimax rotation for a three factor solution. The first factor (responsibility and threat estimation) accounted for 22.43% of the variance which is significantly higher than other factors. The second factor (importance of thoughts) accounts for 6.26%, while the third factor (perfectionism) accounts for 5.98% of the total variance. The factorial structure proved to be very similar to the one identified in other languages and cultures except for the third factor which lacked items assessing the need for certainty. A number of these items were omitted from statistical analysis due to unsuitable level of item difficulty and item discrimination. Various levels of these cognitions were
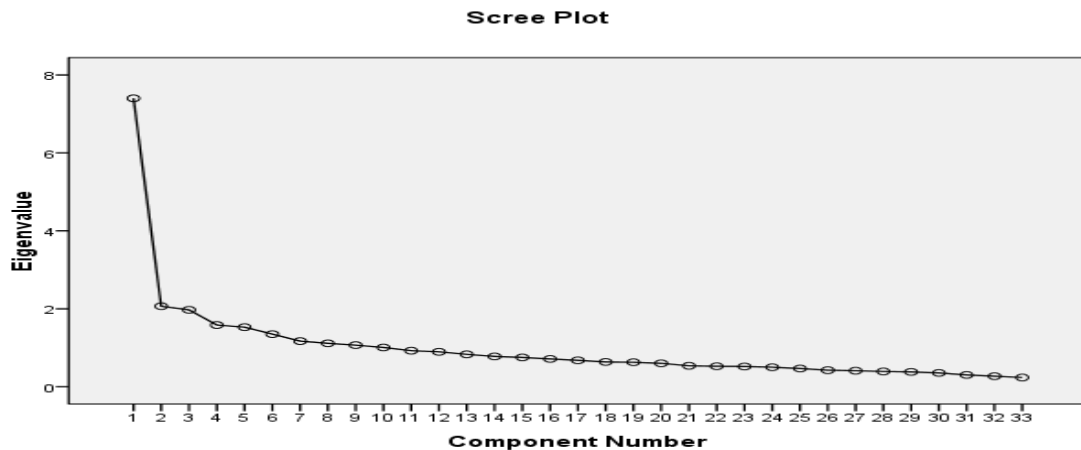
Scree Plot

Figure 1: Scree Plot of Obsessive Beliefs Questionnaire-44 factors

identified in participants, which brought forward the need to further study the relevance of such cognition to OCD and other psychopathology. Internal consistency of the total OBQ-44 score (0.887), split half reliability (0.779) and test- retest reliability with a 4 week interval (0.817) were assessed and considered high. Reliability studies were also conducted on the three scale factors of responsibility and threat estimation, importance of thoughts and perfectionism and factors proved to have high internal consistency (0.827, 0.797 and 0.698), split half reliability (0.804, 0.788 and 0.713) and test-retest reliability (0.808, 0.641 and 0.785). Reliability studies indicated a similarity between the Arabic version and the English version indicating that the cognitions assessed with this instrument are homogenous and are characteristics that demonstrate insignificant change with the passage of time.

Validity studies were conducted using the Arabic version of the MOCI and correlation for the total scores calculated at 0.526 significant at p<0.0001. The correlation between OBQ-44 factors and MOCI factors were calculated and all correlations were significant except for MOCI-washing and OBQ-44 perfectionism. Responsibility and threat estimation is highly correlated with checking and doubt symptoms. The importance of thoughts had the highest correlation with symptoms of washing and doubt. Perfectionism had the highest correlation with slowness and checking and no significant correlation with washing. However, correlations were not high. This is consistent with findings from other countries. Results from an Iranian sample indicated high correlation between the OBQ-44 factors and MOCI factors except for slowness (20). An Italian version of the scale indicated high correlations between all OBQ-44 factors and that of MOCI. A Greek sample indicated a lack of correlation between checking and washing symptoms and the rest of the OBQ-44 factors (20). The correlations between total and subscale numbers of OBQ-44 were significant, except for subscale PC, and BDI-II. It seems negative thoughts and cognitions are correlated with negative emotions, like depression, and obsessive–compulsive disorder symptoms.

Gender differences were compared, and no significant difference was found between male and female students in OBQ-44 and MOCI mean scores, but depression scores for females were significantly higher than males. It means there was no difference between males and females regarding obsessive beliefs, but the female students had significantly more depressive symptoms.

In summary, the results of the psychometric study of the OBQ-44 suggest that the instrument is a reliable measure in Kuwait university students. The underlying structure consisted of three factors identified as responsibility and threat estimation (RT), importance and control of thoughts (ICT) and perfectionism/ Certainty (PC). The descriptive characteristics of the inventory showed that there was no difference between male and female students in OBQ-44, although they are different in depressive symptoms.

The current study is limited in the use of a non-clinical population. Conducting further studies on the discriminant validity of the Arabic version of the OBQ-44 on normal, OCD and samples with mood and anxiety disorders is recommended.

References

1. American Psychiatric Association. Diagnostic and statistical manual of mental disorders, 4th edition. Washington, DC: American psychiatric Association; 2000.
2. Frost RO, Steketee G. Cognitive Approaches to Obsessions and Compulsions: Theory, Assessment, and Treatment. Pergamon; 2002.
3. Salkovskis PM. Obsessional-compulsive problems: a cognitive-behavioural analysis. Behav Res Ther 1985; 23: 571-583.
4. Rachman S, Shafran R. Cognitive distortions: Thought-action fusion. Clinical Psychology and Psychotherapy1999; 6: 80-85.
5. Tallis F. Obsessions, responsibility and guilt: two case reports suggesting a common and specific aetiology. Behav Res Ther 1994; 32: 143-145.

6. Freeston MH, Rheaume J, Ladouceur R. Correcting faulty appraisals of obsessional thoughts. Behav Res Ther 1996; 34: 433-446.

7. Frost RO, Steketee G. Perfectionism in obsessive-compulsive disorder patients. Behav Res Ther 1997; 35: 291-296.

8. Straus EW. On obsession: a clinical and methodological study. New York; 1948.

9. Obsessive Compulsive Cognitions Working Group. Cognitive assessment of obsessive-compulsive disorder. Behavior Research and Therapy 1997; 35: 667-681.

10. Obsessive Compulsive Cognitions Working Group. Development and Initial Validation of the Obsessive Beliefs Questionnaire and the Interpretations of Intrusions Inventory. Behavior Research and Therapy 2001; 39: 987-1006.

11. Obsessive Compulsive Cognitions Working Group. Psychometric validation of the obsessive belief questionnaire and the interpretation of intrusions inventory – part 2: Factor analysis and testing of a brief version. Behavior Research and Therap 2005; 43: 1527-1542.

12. Hodgson RJ and Rachman S. Obsessional-compulsive complaints. Behav Res Ther 1977; 15: 389-395.

13. Abdel khalek A, Lester D, Barrett P. The Factorial structure of the Arabic Obsessive-Compulsive Scale in Kuwaiti and American colledge students. Personality and individual differences 2002; 33: 3-9.

14. Abdel-Khalek AM and Lester D. Reliability of the Arabic Obsessive-Compulsive Scale in Kuwaiti and American students. Psychol Rep 1998; 83: 1470.

15. Beck AT, Steer RA, Brown GK. Manual for the Beck Depression Inventory–II, San Antonio, TX: Psychological Corporation; 1996.

16. Ghareeb. A. G. Manual of the Arabic BDI-II. Cairo, Egypt: Angle Press; 2000.

17. Alansari, BM. Beck Depression Inventory (BDI-II) Sourcebook of Personality disorders Scales. Kuwait: The New Book Home Co., Kuwait University; 2005.

18. Overall JE, Klett CJ. Applied multivariate analysis. New York: McGraw-Hill; 1972.

19. Leong Frederick TL, Austin JT. The psychology research handbook: A guide for graduate students and research assistants 2nd eds. Thousand Oaks: Sage Publications; 2006.

20. Shams G, Karamghadiri N, Esmaeili Torkanbori y, Ebrahimkhani N. Validation and Reliability assessment of the Persian version of obsessive beliefs questionnaire-44. Advances in Cognitive Science 2004; 6: 23-36.