ORIGINAL ARTICLE

Psychometric Properties of Thai Version of Obsessive Belief Questionnaire (OBQ-T)

Thanita Tantrarungroj, MD[1], Ratana Saipanish, MD[1], Manote Lotrakul, MD[1], Pattarabhorn Wisajun, MSc[1]

[1] Department of Psychiatry, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Background: Obsessive Beliefs Questionnaire (OBQ) is a valid measure for assessing obsessional beliefs, which are the main symptoms of obsessive-compulsive disorder (OCD). It is translated and assessed psychometric properties in many languages, however, no valid questionnaire for assessing the beliefs related to OCD is established in Thailand.

Objective: To assess the psychometric properties of the Thai version of the Obsessive Belief Questionnaire (OBQ-T).

Materials and Methods: Participants include ninety-two OCD patients who were duly informed of the details of the present study. Written consent was obtained. The Obsessive Beliefs Questionnaire-44 (OBQ-44) was translated into Thai (OBQ-T) after receiving permission. Data regarding the characteristics of the participants, the OBQ-T, the Thai self-report version of the Yale-Brown Obsessive-Compulsive Scale-Second Edition (Y-BOCS-II-SR-T) severity scale, the Thai Florida Obsessive Compulsive Inventory (FOCI-T), the Patient Health Questionnaire (PHQ-9), and the Pictorial Thai Quality of Life (PTQL), were collected and analyzed. Psychometric properties of the OBQ-T were tested.

Results: The OBQ-T has excellent reliability with a Cronbach's coefficient of 0.945. It has a positive correlation with the Y-BOCS II-SR-T severity scale and the FOCI, which indicates the concurrent validity of the OBQ-T. The content validity index shows acceptable content validity. The confirmatory factor analysis (CFA) and the exploratory factor analysis (EFA) were examined, and the three-factor model is most similar to the original OBQ-44, which is composed of three factors reflecting responsibility and threat estimation, perfectionism and intolerance for uncertainty, and importance and control of thought.

Conclusion: The OBQ-T has an acceptable reliability and validity for the measurement of beliefs and appraisals, which are related to the pathogenesis of obsessions.

Keywords: Obsessive Compulsive Disorder, Psychometric properties, Thai, Obsessional belief questionnaire

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Obsessive compulsive disorder (OCD) is a chronic and deteriorating mental disorder. The symptoms consist of the presence of obsession, compulsion, or both. It affects patients in many areas such as time, money, job, and quality of life[1]. The worldwide and Thailand lifetime prevalence of OCD is 1.3%[2] and 0.3%[3], respectively.

Based on cognitive behavioral therapy (CBT), a first line psychological treatment for OCD, certain dysfunctional beliefs those lead to misinterpretation of the significance of intrusions have a dominant role in the development, maintenance, and prediction of the severity of OCD[4]. CBT theorists have proposed sophisticated models about OCD, such as catastrophic misinterpretation of Rachman et al.[5] and responsibility interpretation from the study of Salkovskis[6]. In addition, cognitive strategies for treating OCD have been based on the modification of key beliefs and appraisals formulated in these theories[7].

Therefore, the Obsessive-Compulsive Cognitions Working Group[8] developed the 87-item Obsessive Beliefs Questionnaire (OBQ) for assessing obsessional beliefs, then the 44-item version was released. This self-report instrument measures dysfunctional beliefs such as obsessive beliefs, and hypothesized to underlie OCD symptoms. It contains three subscales, (a) threat overestimation and responsibility (OBQ-RT), (b) importance and control of thoughts (OBQ-ICT), and (c) perfectionism and need for certainty (OBQ-PC). The OBQ is widely used and has been

Correspondence to:

Tantrarungroj T.

Department of Psychiatry, Faculty of Medicine, Ramathibodi Hospital, Mahidol University. 270 Rama VI Rd., Phayathai, Ratchathewee, Bangkok 10400, Thailand.

Phone: +66-89-4573092, **Fax:** +66-2-3547299

Email: Thanita.hin@mahidol.edu

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translated with its psychometric properties assessed in different languages[9-13].

In Thailand, even though having some measures for OCD assessment, such as the Thai self-report version of the Yale-Brown Obsessive-Compulsive Scale-Second Edition (Y-BOCS-II-SR-T)[14], and the Thai Florida Obsessive Compulsive Inventory (FOCI-T)[15], there is no valid questionnaire for assessing the beliefs underlined OCD, which may have implications for CBT outcome[16]. The aim of the present study was to examine the reliability and validity of the Thai version of Obsessive Belief Questionnaire (OBQ-T).

Materials and Methods

Study design and participants

The present study was a cross sectional study that included ninety-two OCD patients who received treatment from the psychiatric outpatient department at Ramathibodi Hospital between October 2017 and December 2020 via convenience sampling method. Inclusion criteria were 1) diagnosed with OCD by psychiatrists, 2) willing to attend study, 3) capable of communication in the Thai language. Exclusion criteria were having a diagnosis of schizophrenia or other psychotic disorders, severe mood disorders, severe substance use disorder, and profound mental retardation.

Measures

The Thai version of Obsessive Belief Questionnaire (OBQ-T)

The Obsessive Beliefs Questionnaire-44 (OBQ-44) consists of 44 items developed by the Obsessive-Compulsive Cognitions Working Group. It is a 7-point Likert scale, from 1 to 7, which consists of high-loading items from three factors, responsibility and threat estimation with item 1, 5, 6, 8, 15, 16, 17, 19, 22, 23, 29, 33, 34, 36, 39, and 41, perfectionism and intolerance for uncertainty with item 2, 3, 4, 9, 10, 11, 12, 14, 18, 20, 25, 26, 31, 37, 40, and 43, and importance and control of thoughts with item 7, 13, 21, 24, 27, 28, 30, 32, 35, 38, 42, and 44. OBQ-44 has good internal consistency with Cronbach's alpha of 0.95 for OBQ total score. The results also support the convergent, discriminant, and criterion-related validity[8]. After receiving permission to translate OBQ into the Thai language, three authors (TT, RS, and ML) independently translated the measure. They were then checked for differences. The team discussed and came to a consensus, developing one common version. Next, the back translation was completed by a competent psychologist who is fluent in both Thai and English. The three authors then reviewed and evaluated the measures before the preliminary version of OBQ-T was developed. The pilot study was performed in a small sample of OCD patients to identify and adjust problematic items before the final version of OBQ-T was launched.

The Thai self-report version of the Yale-Brown Obsessive-Compulsive Scale-Second Edition (Y-BOCS-II-SR-T), severity scale

The Y-BOCS-II-SR-T severity scale is a self-report that assesses the severity of obsessions and compulsion. It consists of 10 items, each item scoring from 0 to 5. The internal consistencies of the Y-BOCS-II-SR-T severity scale in total scores, the obsession subscale, and the compulsion subscale scores were excellent at α=0.94, 0.90, and 0.89, respectively, with good convergent and divergent validity. Confirmatory factor analysis (CFA) with model modification showed adequate fit for obsession and compulsion factor model[14].

The Thai Florida Obsessive Compulsive Inventory (FOCI-T)

The FOCI contains two parts for assessing obsessive and compulsive symptoms. The symptom checklist scale evaluates the existence of obsessions with 10 items and compulsions with another 10 items, for a total score ranging from 0 to 20. The severity score, which ranges from 0 to 20, assesses the intensity of obsessions and compulsions. The FOCI-T has satisfactory internal consistency and is strongly correlated with the YBOCS-II-T, including obsession subscale, compulsion subscale, and total score. It also has a high correlation with the CGI-S[15].

The Patient Health Questionnaire (PHQ-9)

The PHQ-9 is a self-report questionnaire with Likert-style responses of subjective experience of depressive symptoms in patients' recent two weeks. The nine questions in the Thai version have good internal consistency with Cronbach's alpha 0.79. It also modestly correlates with the Hamilton Depression Rating Scale (r=0.56, p<0.001)[17].

The Pictorial Thai Quality of Life (PTQL)

The PTQL has 25 questions in pictorial format that measure six aspects, physical, cognitive, affective, social function, economic, and self-esteem. The Cronbach's alpha coefficient has a total score of 0.88, and the six subscales range from 0.81 to 0.93. The PTQL has a high association with WHOQOL-BREF, and the Pearson correlation coefficient and area under receiver operating characteristic (ROC) curve are 0.92 and 0.97, respectively. The results

imply good concurrent validity[18].

Procedure

All participants were informed about the details of the present study and their written consents were obtained. The OBQ-T, Y-BOCS-II-SR-T severity scale, FOCI-T, PHQ-9, and PTQL were completed by all participants at the psychiatric outpatient department at Ramathibodi Hospital.

Statistical analysis

The characteristics of the data were analyzed with descriptive statistics using PASW Statistics, version 18.0 (SPSS Inc., Chicago, IL, USA). The psychometric properties of OBQ-T were examined by various statistical procedures. The internal consistency of OBQ-T was calculated by Cronbach's coefficient alpha, with acceptable alpha values ranging from 0.70 to 0.95[19]. The content validity index (CVI)[20], which consists of the item-CVI (I-CVI) and the scale-level CVI (S-CVI), was computed from rating scores by three psychiatrists expertized in treatment for OCD. Discriminant and convergent validity were evaluated by the correlation between Y-BOCS-II-SR-T severity scale, FOCI-T, and PHQ-9.

The CFA was computed by R lavaan package version 0.6-11. According to the model fit principle, the non-significant chi-squared, the value of a comparative fit index (CFI) which is higher than 0.90, the root mean-square error of approximation (RMSEA) which is less than 0.06, would be accepted as a model fit[21]. Next, the test for suitability of data in factor analysis was completed by the Kaiser-Meyer-Olkin (KMO) and Bartlett test of sphericity[22].

After that, the exploratory factor analysis (EFA) was then analyzed to examine the structure and relationship between the variables of OBQ-T. Principal component analysis was selected to reduce data while preserving as much information as possible from the original data set and the oblique rotation was selected to allow for any relationship between the factors to be identified. Next, Kaiser's criterion, which suggests the retention of all factors that are above the eigenvalue of 1, and the scree plot test were used in factor extraction. Considering loading on a factor will be counted on items with a structure matrix value 0.32 or greater[23].

Ethical approval

The authors asserted that all procedures contributing to the present work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008. All procedures involving human subjects or patients were approved by the Institutional Review Board (ID 11-58-59).

Table 1. Baseline characteristics of participants

Baseline characteristics	Frequency; n (%)
Sex	
Male	47 (51.1)
Female	45 (48.9)
Marital status	
Single	66 (73.3)
Married	23 (25.6)
Divorced	1 (1.1)
Religious	
Buddhism	83 (92.2)
Christianity	3 (3.3)
Others	4 (4.4)
Education level	
Primary school to lower secondary school	4 (4.4)
Upper secondary school to associate's degree	14 (15.5)
Bachelor's degree	56 (62.2)
Postgraduate degree	16 (17.8)
Work status	
Employed	51 (61.5)
Unemployed	35 (38.5)
Income (THB)	
Less than or equal to 10,000	34 (39.1)
10,001 to 30,000	33 (37.9)
More than 30,000	20 (33.0)
OCD in first degree relatives	
No	58 (66.7)
Yes	5 (5.7)
Do not know	24 (27.6)

OCD=obsessive compulsive disorder

Results

Baseline characteristics of the participants

The mean age of the ninety-two participants was 35.72±14.33, ranged between 17 and 76. The mean age of onset, duration of illness, and duration of treatment were 24.14±12.97 years, 12.24±9.45 years, and 6.02±6.54 years, respectively. Other baseline characteristics of participants are shown in Table 1.

Scores from the measures

The highest mean score of OBQ was on perfectionism and needed for certainty subscale. The FOCI severity scale and Y-BOCS-II-SR-T severity

Table 2. Scores from the measures

Measures	Mean±SD	Minimum-maximum
OBQ-total	186.67 ±45.67	63 to 293
OBQ-RT	69.97±18.89	24 to 112
OBQ-PC	71.45±18.66	23 to 110
OBQ-ICT	45.77±15.53	15 to 81
FOCI-symptom checklist	9.14±4.49	0 to 19
FOCI-severity scale	8.75±4.47	0 to 19
Y-BOCS-II-SR-T severity scale	19.41 ±9.39	0 to 46
PHQ-9	10.67±6.83	0 to 26
PTQL	36.80±15.63	5 to 73

OBQ=Obsessive Belief Questionnaire; OBQ-total=total score of OBQ-T; OBQ-RT=OBQ-threat overestimation and responsibility subscale; OBQ-PC=OBQ-perfectionism and need for certainty subscale; OBQ-ICT=OBQ-importance and control of thoughts subscale; FOCI=Florida obsessive compulsive inventory; Y-BOCS-II-SR-T=Thai self-report version of the Yale-Brown Obsessive-Compulsive Scale-Second Edition; PHQ-9=Patient Health Questionnaire; PTQL=Pictorial Thai Quality of Life; SD=standard deviation

scale mean scores were in the same direction for the severity of OCD. Scores from PHQ-9 and PTQL suggested moderate depression and moderate quality of life, respectively. Scores from other measures in the present study are shown in Table 2.

Considering each item from OBQ, the highest mean score was 5.54 in item 5, which is "When I see any opportunity to do so, I must act to prevent bad things from happening", and lowest mean score at 2.78 was for item 32, which is "Having an unwanted sexual thought or image means I really want to do it".

Reliability

The internal consistency measured with Cronbach's coefficient was 0.945, which implied excellent reliability. In addition, the analysis of Cronbach's coefficient alpha if items should be deleted suggested that all items should remain.

Validity

As shown in Table 3, the OBQ showed a significantly positive correlation with YBOCS-SR-T severity scale and FOCI, which indicated the convergent validity of OBQ. In addition, the OBQ positively correlated with PHQ-9 and had an inverse correlation with PTQL, which implied the co-occurrence between beliefs in OCD and depression and the decreased quality of life.

Moreover, the content validity was examined. The Item level CVI was above 0.67 for all items and the Scale level of CVI was 0.92. This implied acceptable content validity.

Factor analysis

The CFA was applied. According to previous studies, there were three proposed models of factor analysis. Model 1 was composed of three factors, responsibility and threat estimation, perfectionism and intolerance for uncertainty, and importance and control of thoughts. Model 2 included four factors, perfectionism and intolerance of uncertainty, importance and control of thoughts, responsibility, and overestimation of threat. Lastly, Model 3 consisted of five factors, general perfectionism and certainty, responsibility and threat estimation, importance and control of thought, and complete performance. The recent data failed in model fit with all three models and the indices are shown in Table 4.

After that, the EFA was examined. The KMO was 0.798, which indicated that sampling was adequate for factor analysis. The principal component analysis was chosen as the extraction method with promax rotation. The eigenvalues and scree plot suggested three factor models with the eigenvalues of 13.78, 4.48, and 2.68, and accounted for 47.60% of the variance. In comparison with the previous studies on factor analysis, this recent three-factor model was most similar to Model 1 and the pattern matrix is demonstrated in Table 5.

Table 3. Correlation between measures

	OBQ	Y-BOCS-SR-T severity scale	FOCI-symptoms checklist	FOCI-severity scale	PHQ-9	PTQL
OBQ	-	r=0.407**	r=0.490**	r=0.471**	r=0.427**	r=–0.489**
YBOCS-SR-T severity scale	r=0.407**	-	r=0.589**	r=0.818**	r=0.630**	r=–0.711**
FOCI-symptoms checklist	r=0.490**	r=0.589**	-	r=0.596**	r=538**	r=–0.630**
FOCI-severity scale	r=0.471**	r=0.818**	r=0.596**	-	r=0.611**	r=–0.687**
PHQ-9	r=0.427**	r=0.630**	r=538**	r=0.611**	-	r=–0.797**
PTQL	r=–0.489**	r=–0.711**	r=–0.630**	r=–0.687**	r=–0.797**	-

OBQ=Obsessive Belief Questionnaire; FOCI=Florida obsessive compulsive inventory; Y-BOCS-SR-T=Thai self-report version of the Yale-Brown Obsessive-Compulsive Scale; PHQ-9=Patient Health Questionnaire; PTQL=Pictorial Thai Quality of Life; r=Spearman's rank correlation coefficient

** Correlation is significant at the 0.01 level (2-tailed)

Table 4. Model fit indexes for model from previous studies

Model	Chi-squared (p-value)	CFI	RMSEA
1	<0.001	0.601	0.107
2	<0.001	0.614	0.105
3	Covariance matrix of latent variables is not positive definite		

CFI=comparative fit index; RMSEA=root mean-square error of approximation

Discussion

The OBQ is a self-report measure used to assess obsessional beliefs. It is helpful for mental health care personnel in understanding and for treatment planning of patients with OCD. Even though it was translated and validated into different languages[9-13], there is still no OBQ-T. The purpose of the present

Table 5. Pattern matrix of three factors model

Items and description	Factor 1	Factor 2	Factor 3
29. I am more likely than other people to accidentally cause harm to myself or to others.	0.854*	0.130	–0.227
21. Having nasty thoughts means I am a terrible person.	0.807*	0.260	–0.235
30. Having bad thoughts means I am weird or abnormal.	0.784*	0.170	–0.151
44. If I don't control my thoughts, I'll be punished.	0.742*	–0.197	0.103
38. Having violent thoughts means I will lose control and become violent.	0.709*	0.010	0.020
42. Having a bad thought is morally no different than doing a bad deed.	0.708*	–0.455	0.162
27. Having a blasphemous thought is as sinful as committing a sacrilegious act.	0.704*	–0.206	–0.161
35. Having intrusive thoughts means I'm out of control.	0.607*	–0.083	0.057
22. If I do not take extra precautions, I am more likely than others to have or cause a serious disaster.	0.598*	0.219	0.055
32. Having an unwanted sexual thought or image means I really want to do it.	0.598*	0.253	–0.108
7. For me, having bad urges is as bad as actually carrying them out.	0.585*	–0.075	0.183
24. I should not have bizarre or disgusting thoughts.	0.562*	–0.090	0.109
9. If I can't do something perfectly, I should not do it at all.	0.545*	0.267	–0.077
13. If I have aggressive thoughts or impulses about my loved ones, this means I may secretly want to hurt them.	0.486*	–0.090	0.078
15. In all kinds of daily situations, failing to prevent harm is just as bad as deliberately causing harm.	0.444*	0.025	0.263
39. To me, failing to prevent a disaster is as bad as causing it.	0.442*	–0.079	0.288
34. Even when I am careful, I often think that bad things will happen.	0.377	0.148	0.302
1. I often think things around me are unsafe.	0.370	–0.028	0.331
2. If I'm not absolutely sure of something, I'm bound to make a mistake.	0.316	0.241	0.043
28. I should be able to rid my mind of unwanted thoughts.	0.190	–0.019	0.092
3. Things should be perfect according to my own standards.	–0.036	0.844*	–0.193
26. It is essential for everything to be clear cut, even in minor matters.	–0.152	0.817*	–0.014
20. For me, things are not right if they are not perfect.	0.018	0.802*	0.008
31. I must be the best at things that are important to me.	–0.062	0.802*	–0.017
4. In order to be a worthwhile person, I must be perfect at everything I do.	0.128	0.736*	–0.060
12. Even minor mistakes mean a job is not complete.	–0.039	0.650*	0.105
11. It is essential for me to consider all possible outcomes of a situation.	–0.291	0.573*	0.386
25. For me, making a mistake is as bad as failing completely.	0.375	0.533*	–0.068
43. No matter what I do, it won't be good enough.	0.256	0.499*	0.085
14. I must be certain of my decisions.	–0.159	0.413*	0.310
40. If I don't do a job perfectly, people won't respect me.	0.379	0.406*	0.202
6. Even if harm is very unlikely, I should try to prevent it at any cost.	0.039	–0.073	0.845*
5. When I see any opportunity to do so, I must act to prevent bad things from happening.	–0.283	0.099	0.833*
16. If I'm not absolutely sure of something, I'm bound to make a mistake.	0.024	–0.074	0.755*
17. For me, not preventing harm is as bad as causing harm.	0.197	–0.196	0.716*
10. I must work to my full potential at all times.	–0.471	0.330	0.536*
36. Harmful events will happen unless I am very careful.	0.377	–0.126	0.523*
33. If my actions could have even a small effect on a potential misfortune, I am responsible for the outcome.	0.405*	0.053	0.522*
19. I should make sure others are protected from any negative consequences of my decisions or actions	0.247	0.094	0.504*
8. If I don't act when I foresee danger, then I am to blame for any consequences	–0.005	0.049	0.434*
23. In order to feel safe, I have to be as prepared as possible for anything that could go wrong.	0.089	0.385	0.423*
18. I should be upset if I make a mistake.	0.197	0.185	0.401*
37. I must keep working at something until it's done exactly right.	0.093	0.273	0.380
41. Even ordinary experiences in my life are full of risk.	0.313	0.140	0.336

* Score of greater than 0.40 on the pattern matrix

study was to examine the reliability and validity of the OBQ-T.

From the results of the present study, the mean age of the participants was 35.72±14.33, which is similar to the studies in OCD participants[9,10]. In contrast, the previous studies conducted in undergraduate volunteers had lower average ages[11-13]. The mean scores of total OBQ-T, OBQ-RT, OBQ-PC, and OBQ-ICT in the present study are 186.67±45.67, 69.97±18.89, 71.45±18.66, and 45.77±15.53, respectively, which are comparable with earlier investigation of OBQ in patients with OCD[10]. While considering the scores on items in Thai OBQ, the highest score is about acting to prevent bad things from happening, which is related to the most frequent compulsion, recorded in Thai OCD patients, such as washing or cleaning, and checking. Moreover, the lowest score is about having an unwanted sexual thought or image, which is correlated with the second-to-last rank of frequency of obsession in Thai OCD patients[24]. In addition, the results show a mild degree of depression and average level of quality in OCD participants, which those correlations were mentioned in a previous study[25].

According to the psychometric properties of OBQ-T, the result shows good internal consistency, with a Cronbach's coefficient of 0.945, which is similar to previous studies[8-13]. The convergent validity was fair regarding the moderate correlation between OBQ-T and measures of OCD symptoms such as YBOCS-SR-SS and FOCI[8-11,13]. Moreover, OBQ-T was significantly correlated with PHQ-9 and PTQL, which emphasize the interaction between OCD symptoms, depression, and quality of life[25]. Next, the authors examined the content validity and the results showed acceptability of the assessment from CVI[20].

From the CFA, the present study displays the unmatched fit to three previously proposed models that were found by studies of French and Iranian versions of OBQ-44[9,11]. Hence, the EFA was examined and the data from OBQ-T appeared most likely compatible with the original three-factor proposal, responsibility and threat estimation, perfectionism and uncertainty, and importance and control of thoughts. However, it is noticeable that some items of the OBQ-T do not have the highest loading on the same factor as the original OBQ-44. Moreover, some items load in more than one factor. This pattern of loading might come from the high correlation among items of OBQ-44.

Limitation

The present study has limitations. First, the sample size is small and includes OCD patients from a single psychiatric outpatient department, which may not represent the overall population of OCD patients. However, most OCD patients from the outpatient psychiatric unit in Ramathibodi Hospital were included in the present study. Secondly, the inclusion criteria of being willing to attend the study and capable of communication in the Thai language may introduce bias and exclude certain OCD patients who did not meet these criteria. Furthermore, the exclusion criteria of having schizophrenia or other psychotic disorders, severe mood disorders, severe substance use disorder, and profound mental retardation may limit the generalizability to find OCD patients with these comorbidities. Thirdly, the test-retest reliability was not performed. The reason is that the present study was conducted in an outpatient setting where most OCD patients were not available to visit the hospital twice over a relatively short period of time and the long questionnaire was not suitable for answering by telephone. Fourthly, the use of self-report measures, such as the OBQ-T, Y-BOCS-II-SR-T severity scale, FOCI-T, PHQ-9, and PTQL, may be subject to response biases and may not capture the full range of OCD symptoms and their impact on patients' lives. Lastly, the present study lacks a control group, making it difficult to compare the findings to individuals without OCD or individuals receiving different treatments.

Future research might include the replication of the study of psychometric properties of Thai OBQ in larger clinical samples and nonclinical samples, also, the study of a feasibly shorter version of Thai OBQ should be considered. In addition, the usage of OBQ-T in the treatment monitoring and ROC curve analysis could be performed to shed light on OCD patients' treatment.

Conclusion

The present study proposes that the Thai version of OBQ-44 has justified psychometric properties for evaluating beliefs in Thai OCD patients. Mental health professionals can use it as an assessment measure and guidance for more comprehension of OCD symptoms.

What is already known on this topic?

OBQ is a widely used measure for assessing belief in OCD, however, it has not been translated and validated into Thai language.

What does this study add?

This study aimed to examine the reliability and validity of the OBQ-T. The OBQ-T has excellent reliability with a Cronbach's coefficient of 0.945, and concurrent validity with a positive correlation with the Y-BOCS II-SR-T severity scale and the FOCI. In addition, the content validity index shows acceptable content validity. The CFA and the EFA were examined and the three-factors model is most similar to the original OBQ-44.

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Conflicts of interest

The authors declare no conflict of interest.

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