RESEARCH ARTICLE

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The Validity and Reliability of the Trypophobia Questionnaire Turkish Form

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SUMMARY

Objective: It was aimed in this study to translate the 19-item Trypophobia Questionnaire (TQ) to Turkish and determine its psychometric reliability and validity.

Method: The study included 154 volunteers consisting of the students and employees of Bezmialem Vakıf University, and their family members. The Sociodemographic Questionnaire prepared by the researchers, the Turkish version of the Structured Clinical Interview for axis-1 disorders (SCID-I) of the Diagnostic and Statistical Manual of Mental Disorders (DSM- IV-TR), the Turkish versions of the Disgust Sensitivity Scale-Revised Form (DS-R-TR) and the Hamilton Anxiety Rating Scale (HAM-A-TR) were used.

Results: Turkish Trypophobia Questionnaire (TQ-TR) discriminated between healthy and phobic individuals. Factor analysis on the TQ-TR resulted in a single factor structure as in the original study. The TQ-TR showed a high level of internal consistency with a Cronbach's α coefficient of 0.955.

Conclusion: TQ-TR is a valid and reliable psychometric tool to assess trypophobia in the Turkish population.

Keywords: Trypophobia Questionnaire, fear of holes, validity, reliability

INTRODUCTION

In the fifth edition of Diagnostic and Statistical Manual of Mental Disorders (the DSM-V), specific phobias were defined as feeling a continuous, irrational and observable level of fear or anxiety against a certain object or situation (American Psychiatric Association 2013). The requirements of diagnosing a specific phobia is aversion from the object or situation, continuity of fear or anxiety for a certain time period, and resulting in a clinically significant level of distress or loss of function. Specific phobia is the third most common psychiatric disorder observed in United States of America (USA), and its lifelong prevalence was reported to be 12.5% (Kessler et al. 2005). The prevalence of specific phobias was reported to be 2.7% in the Turkey Mental Health Profile (Kılıç 1998). Trypophobia, which can be expressed in the Turkish language as ''the fear objects with of holes", is one of the rarely reported specific type of phobias that has been recently described.

Trypophobic individuals experience discomfort upon seeing the images of various types of holes. The stimuli that create aversion are clusters of generally harmless-looking holes or round shapes that do not pose a threat. One of the most commonly known stimulus that triggers trypophobia is the image of the seed pot of the lotus flower (Figure 1). Honey comb (Figure 2) and soap foam are also among the commonly observed stimuli. In a study on the prevalence of trypophobia, 10 (11%) out of the 91 male participants and 36 (18%) out of the 195 female participants, who were shown the image of lotus flower's seed pot, stated that they felt disturbed, even disgusted, upon seeing the image (Cole and Wilkins 2013). It was reported that round objects were not the only the stimuli triggering trypophobia, but that any image of very closely located small objects, repeating visual patterns and

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adjacent bumpy shapes were also reported to be able to trigger trypophobia (Le et al. 2015).

Unlike some types of phobia such as cynophobia, trypophobia necessitates visual encounter with the phobic stimulus. Trypophobia appears to be exacerbated when the holes are on human skin (Cole and Wilkins 2013). It had also been reported in earlier times that aversion or discomfort may be experienced when seeing certain geometric shapes (Wilkins et al. 1984).

Contrast in an image is the difference between the brightest part and the darkest part in the image. Clustering of similar images to establish various repeating patterns is not unsettling in every case. It has been shown that image contrast rises with increasing 'spatial frequency' or the increasing number of repeating disconcerting images per unit distance; and, conversely, the contrast in the total image decreases with increasing repeat number of images that do not trigger such aversion (Fernandez and Wilkins 2008, O'Hare and Hibbard, 2011).

In one of the limited number of researches on the incidence of trypophobic symptoms in the population, 50 trypophobic images downloaded from a web site introducing trypophobia (www.trypophobia.com) and 50 images of holes selected by Google search were shown to university students in mixed order in a Powerpoint presentation. A higher level of disturbance was expressed by 20 students, previously determined to be non-phobic, when viewing images taken from the trypophobia web site as compared to the disturbance felt upon seeing Google derived images, which lead to the conclusion that trypophobic images may cause discomfort not only in phobic people but also in non-phobic individuals (Cole and Wilkins 2013).

One of the most frequently expressed feelings by trypophobic individuals upon encountering objects with holes is disgust. From an evolutionary point of view, trypophobia may be an extension of the internal disgust felt towards wounds, scars and poisonous animals with round stains (Cole and Wilkins 2013, Skaggs 2014). Disgust is a feeling that provides protection from attacks (Rozin et al. 2008) and its prevalence in the population is quite variable (Haidt et al. 1994, Rozin et al. 1999). Three components of disgust sensitivity have been reported. These are disgust against attack and threat of disease, disgust against stimuli reminding the animal predecessors of human-beings, and disgust against contagion (Olatunji et al. 2007). From this point of view, it was concluded that trypophobia is not only related with disease avoidance, but also with disgust sensitivity (Imaizumi et al. 2016).

It was reported in a study on trypophobic individuals that trypophobia was observed more in females, with a mean age of onset at adolescence and a chronic and continuous course. The most common comorbid psychiatric disorders were major depressive disorder and generalised anxiety disorder and a family history of trypophobia was common. It was associated with the presence of psychological stress, there being a relation between severity and duration of stress symptoms and severity of trypophobia; and majority of these individuals did not receive treatment, but benefited from internet support groups, and they reported higher level of disgust compared to fear.

In the same study, it was reported that 85.6% of trypophobic individuals experienced mild to severe anxiety, which was more frequent in individuals predominantly experiencing disgust in comparison to those with the basic emotion of fear; and that some had comorbid panic attacks. It was emphasized in the same study that given the high incidence of comorbid psychiatric disorders, these should be envisaged and their diagnoses should also be investigated in patients consulting for symptoms of trypophobia (Vlok-Barnard and Stein 2017). When assessed by the Kessler Psychological Distress Scale (K10), 81.3% of trypophobic individuals have been found to experience mild to severe stress (Vlok-Barnard and Stein 2017). The cited information evinces that trypophobia is a serious phenomenon that results in distinct loss of functionality, requiring careful approach by clinicians.

The psychometric scales used to measure the presence and severity of phobias are mostly self-report scales; the claustrophobia (Radomsky et al. 2006) and health anxiety (Salkovskis et al. 2002) scales being typical examples. The Trypophobia Questionnaire (TQ), was developed in USA by a group of investigators in the University of Essex. Similarly to other phobia assessment tools, it is a self-report questionnaire. Although comprising different types of symptoms this questionnaire, the TQ has a single factor structure consisting of a total of 19 items with a high internal consistency and test-retest reliability (Le et al. 2015). Interestingly, the scores obtained on the TQ in this study did not correlate with the scores on anxiety.

As there was not a psychometric tool available in the Turkish language for evaluating trypophobia, the current study attempted to adapt the TQ to the Turkish language, which is the only known measurement tool to test trypophobia; and to test the validity and the reliability of the TQ-TR on Turkish participants. Hence, a psychometric tool was made available in our language to facilitate the diagnosis and treatment of trypophobia, as the increasingly reported specific phobia with results in serious loss of functionality.

METHOD

Participants

The study was carried out at the Bezmialem Foundation University with a total of 154 individuals, comprising students, staff and their relatives, including 112 females and 42 males aged between 18 and 56 years.

Firstly, after obtaining the permission of the authors and developers of the TQ, the original text was translated to the Turkish language. Subsequently, the resultant TQ-TR was tested on 6 patients who had consulted the psychiatry clinics of the hospital for symptoms of trypophobia and had accepted to complete the TQ-TR and to share their results. The feedback received from these patients was evaluated for the adequacy of the text in the Turkish language and selection of psychometric tools to be used for the validity and reliability analyses studies.

Data Acquisition Tools

The Sociodemographic Data Form: This form was completed by the participant under the supervision of investigators who prepared this questionnaire for data acquisition on address, phone number, gender, education level, occupation, marital status, monthly income and personal and family history of consulting for any psychiatric disorder, somatic diseases, regular use of any drugs, smoking and alcohol intake.

The Hamilton Anxiety Rating Scale (HAM-A): the HAM-A, consisting of a total of 14 items, was developed by Hamilton in 1959 to detect the level and the changes in the severity of anxiety, and the somatic and cognitive symptoms of anxiety. Scoring and assessments are performed by the interviewer. Each question is rated on 0- 4 scores (0: none, 1: mild, 2: moderate, 3: severe, 4: very severe) added to calculate the total score. Scores between 0-5 indicate lack of anxiety, while scores between 6-14 show minor (mild-moderate) anxiety, and scoring 15 or above indicate severe anxiety (Bruss et al. 1994). The validity and reliability of the HAM-A-TR was completed by Yazıcı et al. (1998).

The Disgust Sensitivity Scale-Revised Form (DS-R): The DS-R was first developed by Haidt, McCauley and Rozin (1994) who argued that the disgust response was a multicomponent feeling that has emotional, cognitive and physical dimensions brought about by many different groups of stimuli, mainly foods, odors, animals, body fluids, sexuality, fragmented organs and bodies, dead bodies, low hygiene, and stated that the DS-R was developed in order to examine interindividual differences in the disgust response against these stimuli. In its current form, it has a three-factor and 27-item structure evaluated by a 5- point Likert type scoring (Olatunji et al. 2008, Olatunji et al. 2007). The 3 factors of the scale are named as *core disgust, decay/death* (animal reminder) and *contamination*. Investigation of the psychometric characteristics of the DS-R-TR determined that the total and the subscale internal consistency coefficients were satisfactory with a high test-retest reliability (İnözü and Eremsoy 2013).

The Structured Clinical Interview for DSM-IV-TR (SCID-I): The SCID-I is a structured interview established by First et al. (1997) for making DSM-IV based diagnoses (American Psychiatric Association 1994). The validity and reliability of the SCID-I in the Turkish language was conducted by Özkürkçügil et al. (1999).

The Trypophobia Questionnaire (TQ): The TQ was developed by An Trong Dinh Le et al. (2015). It consists of 17 items selected from the responses of the participants who were shown the images of a lotus flower (Figure 1) and of a honey comb (Figure 2) from the trypophobia website (www.trypophobia.com), and also of 2 more 'opposite items' added to the TQ-TR by the investigators. The options on

Figure 1. The Close Up Image of the Lotus Flower's Seed Pot

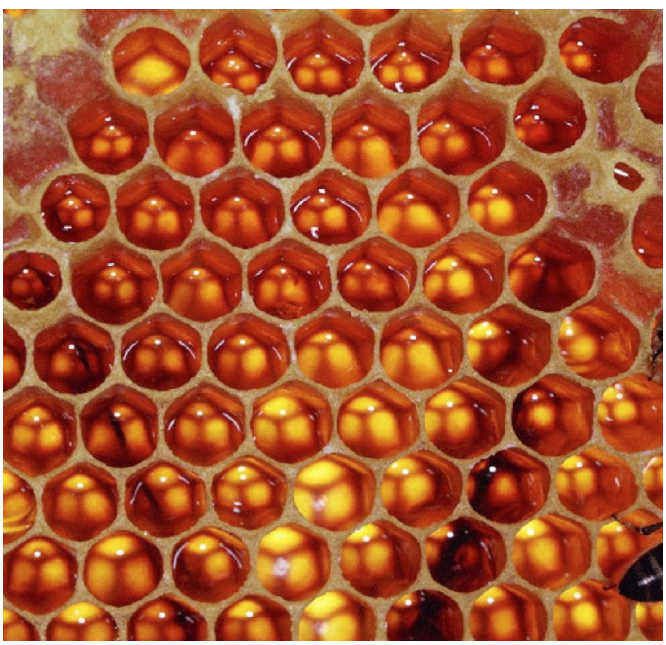

Figure 2. The Close Up Image of Honeycombs

the 5-point Likert type questionnaire vary between "none=1 point" and "too much=5" points. After subtracting opposite items, the TQ score is determined by summing up the scores of the remaining 17 items. Accordingly, the scores on this questionnaire vary between 17-85 points.

The internal consistency Cronbach's alpha coefficient of the original format of the TQ was calculated as 0.955 and the results of the dependent samples t-test and Pearson correlation test, test-retest reliability were shown to be at a good level. The highest sensitivity and specificity of the TQ were obtained at scores above 31, at which cut off point the area under the curve obtained by the ROC analysis was 0.987, showing that the TQ was highly capable of determining trypophobia.

The original TQ text was translated to the Turkish language by one of the psychiatrists in the research team who had a very good command of the English language. The new text was evaluated comparatively with the original TQ text by the two psychiatrists in the study team in. Furthermore, the resultant TQ-TR was tested on 6 patients who were consulting pyshciatry clinic for symptoms of trypophobia, which provided the feed back that facilitated making the requisite changes in the text.

Procedures

The Sociodemographic Data Form, prepared for the study, and the Turkish language versions of the SCID-I-TR for the DSM-IV, the DS-R-TR and the TQ-TR were completed with 154 volunteering participants consisting of students who were in their psychiatry internship at the time of the study, university employees and their relatives. These tests were conducted by the investigators at the psychiatry unit and clinics between April 2018 and December 2018. The questionnaires were controlled by the investigators and the results of the 154 participants were included in the assessment analyses.

For the purposes of the discriminant validity analysis the SCID-I interview was carried out one-to-one, with the approval of all of the 154 participants, by two psychiatrists not taking place in the assessments team and not informed of the TQ-TR, DS-R and the HAM-A scores of the participants, thus eliminating the probability of biased results.

The study was approved by the Bezmialem Foundation University Noninterventional Trials Ethics Committee, by the decision date:19.03.2018, and the decision no: 5/41.

RESULTS

The mean age of the 154 participants was 29.1 (±7.4) years, and the values were statistically normally distributed, while the HAM-A-TR, DS-R-TR and TQ-TR total scores were not normally distributed. Therefore, parametric analyses were used for age comparison, while nonparametric analyses were used for other comparisons. Some of the sociodemographic data of the study group are shown in Table 1.

Table 1. Demographic Data of the Participants of the Study

	Female	Male	Total number of the participants	Statistics
Age	28.4±7.1	31.0±8.0	154	p = 0.074
Married	43	16	154	p = 0.868
Associate degree or upper level education	85	29	154	p = 0.270

Notes: Ages were compared using the Student t-test; marital status and level of education were compared using the Chi-square test.
Abbreviations: p = probability value.

On the basis of the SCID-I, 28(18.2%) participants (20 females, 8 males) were diagnosed with trypophobia, and that 11(39.3%) of these 28 participants had comorbid psychiatric diagnoses ranking as major depressive disorder (n=4), generalized anxiety disorder (n=3), panic disorder (n=2), bipolar-2 disorder at depressive episode (n=1) and social anxiety disorder (n=1). Among the 126 participants who were not diagnosed with trypophobia, 11 had different axis-1 disorders according to SCID-I-TR, ranked as major depressive disorder (n=4), generalized anxiety disorder (n=3), panic disorder (n=2), illness anxiety disorder (n=1) and obsessive-compulsive disorder (n=1).

Reliability Analyses

Item analysis: The item-total score correlation, used in this study for item analysis, is generally expected to be above 0.20, and not to be negative. In our study, it was determined to exceed 0.20, varying between 0.528 and 0.921 for all items apart from the number 12 and number 17 'opposite items' which had negative item-total score correlation (Table 2).

Internal consistency: The Internal consistency of TQ-TR was based on the Cronbach's alpha coefficient, determined to be 0.955 on the data of the total of 154 participants.

Test-retest reliability: The TQ-TR was retested 4 weeks after the first test on 24 subjects in the group diagnosed with trypophobia on the basis of the SCID-I and on 54 participants randomly selected from those who were not diagnosed with trypophobia. Hence, a total of 78 participants (25 males, 53 females), were retested for the test-retest reliability. The test-retest reliability was shown to be at a good level ($p<0.01$, $r= 0.995$) by the results of the dependent samples t-test and the Pearson correlation test. By comparing the diagnostic groupings based on the TQ-TR scoring with those based on the SCID-I results, the specificity and sensitivity values of the TQ-TR were calculated to be, respectively, 96% and 100%. (Figure 3).

Table 2. The TQ-TR Item-Total Score Correlations

Item	Corrected item-total score correlation	Cronbach's Alpha value when the item is removed
1. I feel freaked out.	0.846	0.951
2. I feel aversion, disgust or repulsion.	0.831	0.951
3. I feel uncomfortable or uneasy.	0.874	0.950
4. I am panicking or screaming.	0.814	0.951
5. I feel anxious, full of dread or fearful.	0.921	0.949
6. I feel sick or nauseous.	0.834	0.951
7. I feel nervous (e.g. heart pounding, butterflies in stomach, sweating, stomach ache, etc.).	0.822	0.951
8. I feel like going crazy.	0.751	0.952
9. I have an urge to destroy the holes.	0.528	0.956
10. I feel itchiness.	0.797	0.951
11. I feel skin crawl.	0.872	0.950
12. I feel at peace.	-0.191	0.961
13. I have goosebumps.	0.890	0.950
14. I shiver.	0.725	0.952
15. I feel like crying.	0.782	0.952
16. I am retching or feeling like about to vomit.	0.708	0.953
17. I want to laugh.	-0.139	0.961
18. I am getting a chill.	0.733	0.953
19. I have trouble breathing.	0.663	0.954

Notes: The negative values of item-total score correlations are demonstrated with bold characters.

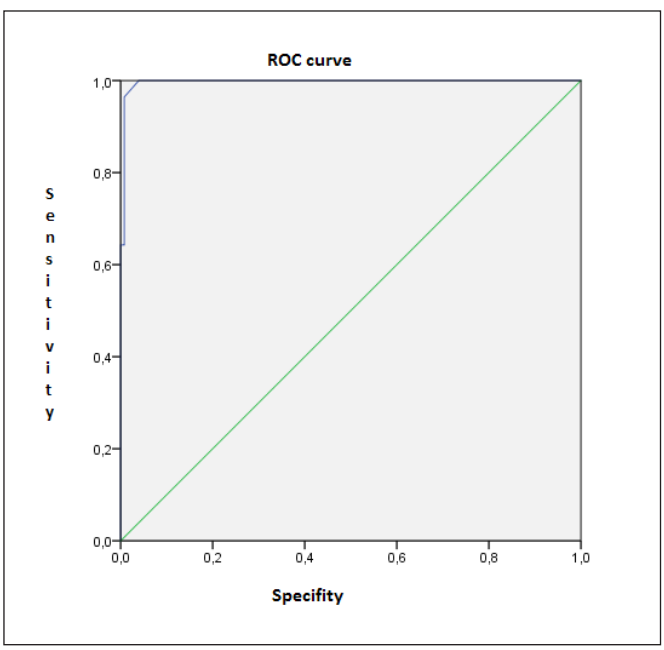

Figure 3. The ROC Curve Demonstrating the Sensitivity and Specificity of the Turkish Language Version of the Trypophobia Questionnaire (TQ-TR)

Validity Analyses

Construct validity: Construct validity determines whether a measurement tool performs measurements in line with its purpose. Confirmatory factor analysis method was used in order to determine the construct validity of the TQ-TR.

It was observed in first analysis that single factor structure explained 60.4% of the variance. In the repeated factor analysis after removing opposing items 12 and 17, it was observed that the single factor structure explained 67.1% of variance. On the basis of these results it was decided to maintain the single factor structure, similarly to the original study, demonstrating that the TQ-TR had construct validity as with the orginal format (Table 3).

Table 3. Component Matrix Values of Items According to the Single-Factor Model of the TQ-TR

Items	Component matrix value
1. I feel freaked out.	0.868
2. I feel aversion, disgust or repulsion.	0.858
3. I feel uncomfortable or uneasy.	0.888
4. I am panicking or screaming.	0.840
5. I feel anxious, full of dread or fearful.	0.932
6. I feel sick or nauseous.	0.854
7. I feel nervous (e.g. heart pounding, butterflies in stomach, sweating, stomach ache, etc.).	0.849
8. I feel like going crazy.	0.782
9. I have an urge to destroy the holes.	0.565
10. I feel itchiness.	0.814
11. I feel skin crawl.	0.889
12. I feel at peace.	-0.199
13. I have goosebumps.	0.911
14. I shiver.	0.760
15. I feel like crying.	0.815
16. I am retching or feeling like about to vomit.	0.748
17. I want to laugh	-0.140
18. I am getting a chill.	0.772
19. I have trouble breathing.	0.701

Notes: The negative component matrix values are demonstrated with bold characters.

Content validity: It was considered that the DS-R-TR, with demonstrated validity and reliability, could be used in analysing the content validity of the TQ-TR since it measures disgust, a commonly reported symptom of trypophobia. Hence, using the Pearson correlation test, the DS-R-TR total score and subscale scores were demonstrated to have signficiant and positive correlations with the TQ-TR total score at $p< 0.01$ level. The correlation of TQ-TR total score with DS-R-TR total score was 0.688, and the correlations

Table 4. Comparement of Individuals Who are Diagnozed with Trypophobia and Who are not, with Respect to Questionnaire and Scale Scores

	Trypophobic individuals according to SCID-I	Non-trypophobic individuals according to SCID-I	Statistics
TFA total score	47.0±15.8	19.3±3.2	Z= -7.3, p<0.01
DS-R factor-1 score	44.2±7.4	32.7±6.9	Z= -5.9, p<0.01
DS-R factor-2 score	26.7±3.2	18.3±4.7	Z= -7.2, p<0.01
DS-R factor-3 score	16.2±3.1	12.0±3.3	Z= -5.3, p<0.01
DS-R total score	87.1±9.3	63.1±12.0	Z= -8.5, p<0.01

Abbreviations: SCID-I: Structured Clinical Interview for Axis-1 Disorders in Diagnostic and Statistical Manual of Mental Disorders 4th edition; TFA: Turkish form of TQ (Trypophobia questionnaire); DS-R: Disgust Scale- Revised Form; Z: Z score; p: probability value. Statements: Comparements are assessed with Mann-Whitney U test, statistically significant results are marked with bold characters.

with the DS-R-TR subscales were 0.633 on *core disgust*, 0.586 on *death/decay* and 0.479 on *contamination*, (p= 0.001 for all, respectively).

Significant correlations were not observed between the total scores of the HAM-A-TR and the TQ-TR (p= 0.212, r= 0.101). Therefore, similarly to the original study with the TQ, it was determined in our study that the TQ-TR scores did not significantly correlate with anxiety levels.

Discriminant validity: The level of success of the TQ-TR for discerning diagnosed and not diagnosed subjects was investigated in the clinically specific phobia group. The total TQ-TR score was analyzed with the

Mann Whitney U test to demonstrate whether there was a difference between the groups with (n= 28) and without (n= 126) the specific phobia (trypophobia) according to SCID-I. The mean total score of the TQ-TR was 19.3 (±3.2) in the participants without trypophobia, and 47.0 (±15.8) in those diagnosed with trypophobia, the difference being statistically significant (p<0.01). These results show that the TQ-TR can successfully discriminate subjects with and without trypophobia (Table 4).

The results of the Chi-square test showed that the prevalence of the SCID-I diagnosed trypophobia did not significantly differ between genders (p= 0.865, r=0.03). When analysed with the independent samples t-test, a statistically significant difference was not determined between the mean total TQ-TR score of the female and the male participants of the 154 study group (female: 24.0±11.8, male: 25.3±15.6) (p= 0.594).

DISCUSSION

In our study, a validity and reliability study was conducted for the TQ-TR that enables the detection of the phobia against objects with holes, the examination of the dimensions of this phobia and the grading their severities. This tool with 19 items and a single dimension, which measures the fear about holes and round shapes and recently addressed in literature as trypophobia, was translated to the Turkish language with the permission of the authors, and subsequent testing of its psychometric characteristics were analysed to be generally satisfactory.

The opposing items, numbers 12 and 17, of the TQ-TR correlated, as expected, negatively with the total score. The other items correlated positively with the total score and the positive correlation coefficients were higher than expected. Furthermore, once items 12 and 17 were removed, the single factor structure of the TQ-TR explained a larger percentage of the variance. Contents of the single factor structure of the TQ-TR in our study and the single factor structure reported in the study with the original format of the TQ largely overlap, on the basis of which demonstration it was concluded that the TQ-TR had construct validity.

Among the theories explaining the formation of a phobia, the leading ones are the learning theory (Merckelbach and Muris 1997) and the evolutionary mechanism theory (Marks and Nesse 1994). It was reported that the conditioning theory cannot explain all phobias, since phobias are generally triggered with a limited group of objects, and the response against the phobic object or condition may not be fear in each case (Seligman 1971). Apart from the fear developed against phobic objects, reactions such as disgust and aversion have been tried to be explained with the concept of biological preparation. Accordingly, phobias are the products of a defense created with the effect of the pressure brought by natural selection in ancient ages, and they may be important in the continuity of life by avoiding dangerous stimuli with the help of aversion and disgust (Mc Nally 1987). The TQ-TR analysed in this study was established for the examination of a phobia in which many other reactions, apart from fear, such as disgust and aversion were prominent.

The DS-R-TR total and subscale scores showed positive correlation with the TQ-TR total score. These results indicate that content validity was provided. The subscale with the score showing the highest correlation with TQ-TR total score was *core disgust* (0.633). Similarly to the study on the original TQ, this result suggests that disgust sensitivity of patients with trypophobia is high. It was reported that disgust sensitivity may have a predictive effect for trypophobia since it facilitates the perception of the threat of disease that can be sourced by waste products and small animals (Olatunji et al. 2007, Rozin et al. 2008). In other words, trypophobic reactions

caused by a cluster of small objects and possibly the image of poisonous animals may partially overlap with disgust (Cole and Wilkins 2013). Considering the reports indicating that trypophobia is an extension of the disgust against dangerous animals and skin lesions (Cole and Wilkins 2013, Skaggs 2014), trypophobic images may be considered to function as a self-oriented, protective negative stimuli in individuals who have an inclination to trypophobia. Similarly, it was hypothesized that increased emotional functions that allow aversion behavior against potential ecological threats bring out trypophobia (Imaziumi et al. 2016).

In a recent study on the predictors of trypophobia (Imaziumi et al. 2016), Interpersonal Reactivity Index (IRI, Davis 1983) and a scale named 'Visual Discomfort Scale (VDS, Conlon et al. 1999), which measures the feeling of disturbance triggered by visual stimuli and have not yet been translated to the Turkish language according to our information, were used in addition to the DS-R and it was determined that the TQ total score showed a positive correlation with the '*core disgust*' subscale of the DS-R, the '*personal distress*' subscale of the IRI and the VDS total score. The *personal distress*'subscale of the IRI measures the status of focusing more onto one's own anxiety and restlessness, and feeling desperate against the poor status of others. It is understandable and expected for an individual who wants to keep guarded against possible threats to themselves to reduce their sensitivity against threats that may be experienced by others. The positive correlation between the VDS and the TQ scores is also expected since trypophobic images also cause visual disturbance.

In the group of 154 participants interviewed in our study on the SCID-I-TR for diagnosis, the TQ-TR could significantly discern those diagnosed with specific phobia (trypophobia). Accordingly, it may be concluded that specificity and sensitivity of the questionnaire is high and it will be suitable for use in clinical practice.

In our study, trypophobia prevalence was determined to be higher compared to the study with the original TQ. This may be related to the selection characteristics of our participants. Part of the volunteering students and the other participants had already recognized their trypophobic symptoms, and they may, therefore, have wished to participate in the study in order to better understand their problems. Since trypophobia had not been recognized until recently, information may not have been yet adequately disseminated.

Our study has several limitations. Firstly, since our study is cross-sectional, the time-dependent changes in the trypophobic reactions of the participants to particular triggering objects were not examined. In the original text of the TQ, there is not an item that queries the time-dependent change of trypophobic reactions. Also, in our study, item(s) in this respect were not included in the TQ-TR. Having used on the HAM-A to assess the anxiety level of the participants may have created a limitation. Measuring anxiety levels by methods depending on more tangible evidence, such as with electrocardiography, pulse rate or electrodermal activity (EDA) measurements could have provided us with more objective results. Our study was performed with people living in a relatively limited geographical area and their relatives. Moreover, most of the participants were females. Therefore, it may not be appropriate to generalize to general population the results obtained from our participants, and particularly the prevalence rates.

CONCLUSION

The data obtained from our study have shown that the TQ-TR is a valid and reliable psychometric tool for assessing trypophobia.-Consequently, we believe that contribution of the TQ-TR to the diagnostic literature in the Turkish language will be useful in the diagnosis, treatment and the management of the follow-up processes on trypophobia patients.

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