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ORIGINAL ARTICLE

Validity and reliability of the Turkish Occupational Balance Questionnaire (OBQ11-T)

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ABSTRACT

Background: Occupational balance (OB) is an important concept in occupational therapy and is considered as an essential component of health and well-being.
Aim: The aim of this study was to investigate the validity and reliability of the Turkish version of the Occupational Balance Questionnaire-11 (OBQ11-T).
Materials and methods: The OBQ11-T was administered to 116 individuals for construct validity analysis and to 58 individuals for reliability analysis. Validity was determined using explanatory and confirmatory factor analysis. In confirmatory factor analysis, RMSEA (root mean square error of approximation) value, comparative fit index (CFI), and Chi-square to degrees of freedom ratio (CMIN/DF) were analysed. The test–retest method and Cronbach's alpha coefficient were used to assess the reliability and internal consistency of the OBQ11-T, respectively.
Results: The model fit the data according to the indices of relative fit (RMSEA = 0.076, CMIN/DF = 1.661, and CFI = 0.875). The correlation coefficient between test and retest OBQ11-T total scores was 0.922. Total scores showed a significant statistical relationship ($p < 0.01$), indicating good reliability. Cronbach's alpha for OBQ11-T total score was 0.785, indicating acceptable internal consistency.
Conclusions and significance: The current study demonstrates that the OBQ11-T is a valid and reliable tool for measuring the self-rated OB of healthy individuals.

Introduction

Occupational balance (OB) is among the important concepts in occupational therapy which has always been a concern of occupational therapists [1,2]. Various definitions of OB can be found in the literature. It has been described as the balance between different occupational areas [1] or according to another definition, the rhythm between daily occupations [3], as an individual's satisfaction with their occupational patterns [4], and as the balance between what the individual is supposed to do and what he/she wants to do [5,6]. It has also been stated that this balance must be based on the individual's personal values, without harming others [2].

OB is examined according to types of occupation such as self-care, productivity, and leisure, and also different dimensions such as physical, mental, and social dimensions that are required to engage in occupations [7]. OB is a subjective concept and includes time use. In this context, OB refers to the balance between the amount and variety of occupations within occupational patterns [1,8].

Occupational therapists believe that OB is the basis for well-being, happiness, and health. OB allows the individual to gain various experiences through participation in different activities, which may expand one's own identity and potential competence in different areas. At the same time, participating in different activities gives life structure and creates opportunities to socialize and foster a sense of belonging and purpose, thereby enriching life [2,8,9].

Technological development and industrialization tend to increase the intensity of daily life, especially for working adults. This has been associated with work/life imbalance, in which individuals may perform necessary activities such as going to work and/

or school, but they may not allocate enough time for leisure activities such as taking part in physical activities [10]. The resulting deterioration or decrement in OB may also be related to individuals' quality of life [11]. Occupational imbalance is reported to affect both the physical and the psychological state, create significant stress on the body and mind, and cause mental health problems and burnout [2,12,13]. Similar to these results, in the studies where OB was evaluated by questionnaires, low scores obtained in the results were shown to be risk factors for stress-related diseases [13–15]. As a result, there is a negative relationship between occupational imbalance and subjective well-being and health [8,16].

OB is subjectively defined by individuals in terms of how they choose to spend time valued, obligatory, and discretionary activities. Therefore, measurement of such a construct must be client-centred and take into account individual variation regarding what constitutes a 'balanced' life. The purpose of measuring OB that is to help people discover a balance that is right for them. It is possible to use various data collection procedures to obtain information about engagement in occupation and use this as a basis for problem identification and resolution with clients. The importance of using standardized assessment tools in occupational therapy can be defined in three subheadings as outcome measurement, cost-effectiveness, and clinical audit [8,17].

Occupational therapy is a rapidly developing field in Turkey. However, we have yet to conduct any studies to develop a Turkish scale for OB or to evaluate the validity and reliability of an existing OB instrument adapted to Turkish. We believe that a tool for assessing OB, one of the key concepts in occupational therapy, will be a valuable contribution to the field of occupational therapy in Turkey. When instruments are developed in one cultural context and translated for use in another cultural context, empirical scrutiny is needed to ensure psychometric soundness [18]. The present study was conducted to investigate the validity and reliability of the Turkish version of the Occupational Balance Questionnaire (OBQ), a self-report instrument about OB.

Materials and methods

The researchers contacted the developers of the original OBQ and obtained written permission to translate the questionnaire into the Turkish language. Ethical approval was granted by the Tokat Gaziosmanpasa University Clinical Research Ethics Committee. Participants were informed about OB and the aim of the study. Volunteers who agreed to participate in the study read and signed an informed consent form (Figure 1) [19].

Evaluation instrument

Occupational Balance Questionnaire

The OBQ is a scale that measures self-rated OB in different dimensions. The purpose of the scale is to measure satisfaction according to the amount and variety of daily activities of the individual and to define their OB according to the obtained results. The scale was developed by Wagman and Hakansson in 2014. Their study showed that the OBQ had good internal consistency (Cronbach's alpha 0.936) and adequate test–retest reliability (Spearman Rho 0.926 for total score) in healthy individuals aged 18 or older [7]. After obtaining the required permission and in light of a more recent study by Wagman and Hakansson [20], we decided to use the revised 11-item version of the OBQ. They tested the validity of the OBQ with Rasch analyses and found that the response categories did not work as intended and two items showed multidimensionality. This resulted in the OBQ11, a revised version with 11 items and 4 response categories. Each item in the scale is scored on a 4-point scale from 'strongly disagree' to 'strongly agree'. The total score is obtained by summing the individual items and ranges from 0 to 33, with higher scores indicating higher OB.

Participants

This study was carried out in Tokat Gaziosmanpasa University, Faculty of Health Sciences. Participants from the student body, teaching faculty, other employees, and their families were recruited for the study using convenience sampling (Figure 1). The participants recruited with flyers and word of mouth methods. Subjects were informed about the purpose of the study and those who volunteered to participate were included in the study. The inclusion criteria were being 19 years of age or older, literate, and healthy. Participants who reported no history of acute/chronic disease were considered healthy. The researchers invited 135 healthy individuals to participate and 4 declined. Fifteen individuals were included in the pilot phase of study; therefore, data from 116 healthy individuals were analysed to evaluate the construct validity of the OBQ11-T. Fifty-eight of the 116 participants were randomly selected to complete the
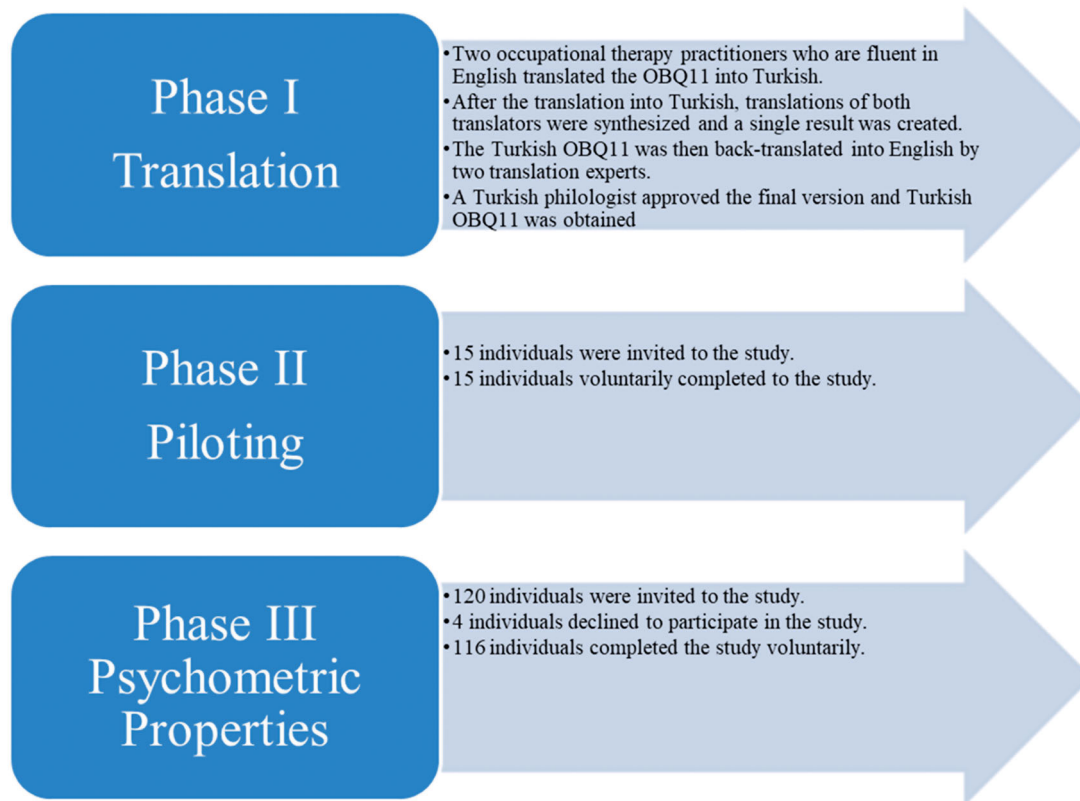
Phase I Translation
- Two occupational therapy practitioners who are fluent in English translated the OBQ11 into Turkish.
- After the translation into Turkish, translations of both translators were synthesized and a single result was created.
- The Turkish OBQ11 was then back-translated into English by two translation experts.
- A Turkish philologist approved the final version and Turkish OBQ11 was obtained

Phase II Piloting
- 15 individuals were invited to the study.
- 15 individuals voluntarily completed to the study.

Phase III Psychometric Properties
- 120 individuals were invited to the study.
- 4 individuals declined to participate in the study.
- 116 individuals completed the study voluntarily.

Figure 1. Schematic of study design and procedures.

questionnaire again 7–10 days later to analyse the reliability of the OBQ11-T.

Turkish adaptation, validity, and reliability of the OBQ11

Evaluation of the validity of the OBQ11-T in healthy individuals was conducted in three consecutive stages: translation, piloting, and analysis of psychometric properties [19].

Phase 1: Translation

The process of translation was conducted in line with previously described procedures [19]. Two occupational therapy practitioners who are fluent in English translated the OBQ11 into Turkish. After the translation into Turkish, translations of both translators were synthesized and a single result was created. The Turkish OBQ11 was then back-translated into English by two translation experts. The back-translated version was submitted to the instrument's developers to determine whether it was consistent with the original English version. A Turkish philologist approved the final version, yielding a preliminary version of the OBQ11-T. During the translation phase, changes were made to address linguistic problems; no adaptive changes were needed due to cultural differences.

Phase 2: Piloting

A pilot study was conducted to prevent non-intended meaning and get feedback about the questionnaire from the respondents. The preliminary version of the Turkish OBQ11 was applied to 15 healthy individuals (53.3% were female, mean age was 40.8 ± 11.5 years, and 33.3% held bachelor's degrees). Two of the respondents stated that they had difficulty understanding the word 'intellectual' in item 6. In order to make the item more comprehensible, 'mentally' was written in parentheses beside the word intellectual. Two respondents stated that they had trouble understanding the phrase 'enough diversity' in item 9. However, this item could not be changed because it would no longer be true to the original. Two respondents suggested that the rating scale should be changed, but this was also not changed to remain consistent with the original scale. None of the respondents in the pilot study had any negative comments about the questionnaire.

Phase 3: Establishment of the psychometric properties phase

Exploratory and confirmatory factor analyses were used to evaluate construct validity and test–retest analysis and Cronbach's alpha were used to evaluate the reliability of the instrument.

Data analysis

Data were analysed with SPSS version 23.0 statistical software package program and SPSS AMOS program version 23.0. Normality of the data was analysed using the Shapiro–Wilk test [21]. Validity was determined using explanatory and confirmatory factor analysis. Explanatory factor analysis examined factor loadings of OBQ11 scores. In confirmatory factor analysis, root mean square error of approximation (RMSEA) values below 8% were considered significant [22,23]. In addition to RMSEA value, comparative fit index (CFI) and Chi-square to degrees of freedom ratio (CMIN/DF) were analysed. Statistical significance was accepted at values over 0.9 for CFI [24] and between 1 and 3 for CMIN/DF [25].

The reliability of the instrument was investigated using the test–retest method and Cronbach's alpha. Reliability of the OBQ between the first and second evaluation was assessed using intraclass correlation coefficient (ICC). ICC values were calculated for each item and for the total score of OBQ11-T. Interpretation of ICC values was as follows: poor (<0.40), fair (0.40–0.60), good (0.60–0.75), and excellent (0.75–1.0) [22]. A value of $p < 0.05$ was considered statistically significant. Internal consistency was assessed using Cronbach's alpha [26].

Results

Participants

The mean age of the 116 participants was 36.12 ± 12.8 years (min = 19 years, max = 70 years), and 72% were female. Other demographic characteristics are shown in Table 1.

Construct validity

Exploratory factor analysis. The Kaiser-Meyer-Olkin (KMO) value of 0.798 and Bartlett's test of sphericity ($p < 0.0001$) indicated the suitability of factor analysis to be conducted. The results of factor analysis revealed one factor that explains 33.66% of the total variance in the model. OBQ11-T item 1 (In a typical week, I feel there are just enough things to do) had

Table 1. Demographic characteristics of the participants.

Demographic variables	N (116)	%
Sex		
Male	33	28
Female	83	72
Marital status		
Married	70	60
Single	46	40
Education level		
Primary school	13	11
Secondary school	3	3
High school	41	35
Bachelor's degree	49	42
Postgraduate	10	9
Employment status		
Working	72	62
Not working	10	9
Student	34	29

Table 2. Factor loadings of the Turkish Occupational Balance Questionnaire (OBQ11-T).

Items content	Items	Factor
Balance between physical, social, mental, and restful occupations	6	0.768
Balance between energy-giving/energy-taking activities	10	0.756
Satisfaction with how time is spent in everyday life	7	0.631
Balance between work, home, family, leisure, rest, and sleep	4	0.612
Satisfaction with time spent in rest, recovery, and sleep	11	0.605
Satisfaction with the number of activities during a regular week	8	0.603
Balance between obligatory/voluntary occupations	9	0.546
Time for doing things wanted	3	0.543
Have sufficient time for doing obligatory occupations	5	0.492
Balance between doing things for others/for oneself	2	0.381
Having sufficient things to do during a regular week	1	0.243

the lowest and OBQ11-T item 6 (Balance between physical, social, mental, and restful occupations) had the highest factor loadings. Table 2 presents factor loadings of the items.

Confirmatory factor analysis (CFA). CFA was performed to confirm the factor structure of the OBQ11-T. The results of the RMSEA, CFI, and CMIN/DF model fit indices were analysed. The path diagram of CFA is presented in Figure 2. The model fit the data according to the indices of relative fit (RMSEA = 0.076, CMIN/DF = 1.661 and CFI = 0.875).

Test–retest reliability

Test–retest reliability was evaluated using OBQ11-T responses from 58 individuals who were retested 7–10 days after the test. There was excellent correlation between test and retest OBQ11-T total scores (ICC = 0.922) [27]. All items of the OBQ11-T showed good reliability (Table 3). However, items 6 and 7 show fair reliability.
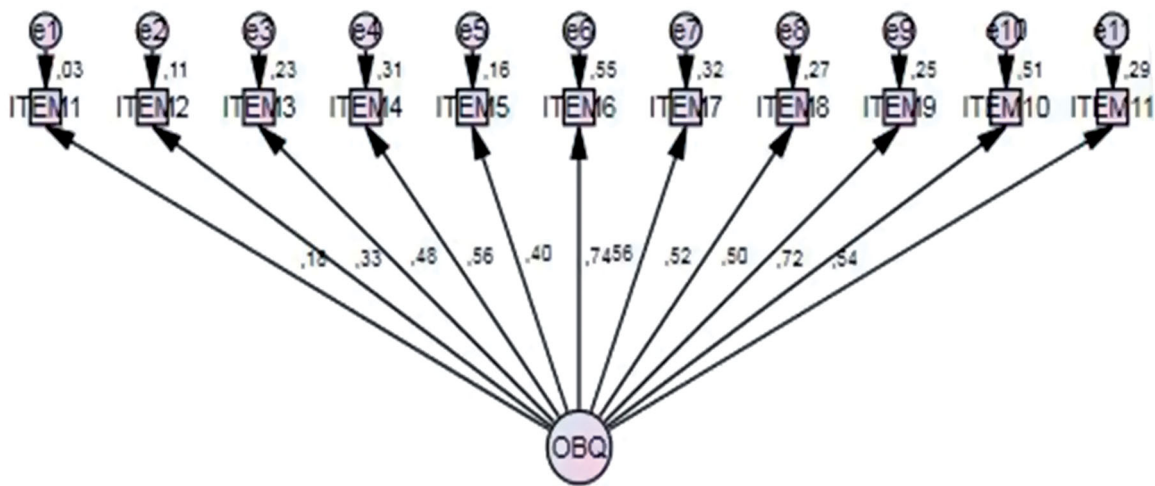
Figure 2. The path diagram of confirmatory factor analysis.

Table 3. Intraclass correlation coefficients (ICC) and 95% confidence intervals (CI) for each item.

	ICC	95% CI (lower–upper bound)
Item 1	0.793	0.650–0.877
Item 2	0.825	0.705–0.897
Item 3	0.741	0.563–0.847
Item 4	0.668	0.438–0.803
Item 5	0.609	0.340–0.769
Item 6	0.589	0.306–0.757
Item 7	0.592	0.310–0.758
Item 8	0.715	0.519–0.831
Item 9	0.715	0.519–0.831
Item 10	0.749	0.576–0.851
Item 11	0.705	0.501–0.825
Total score	0.922	0.868–0.954

Table 4. Reliability results of the Turkish Occupational Balance Questionnaire (OBQ11-T).

	Min–max	Median	Corrected item-total correlation	Cronbach's Alpha if item deleted
Item 1	0–3	2	0.174	0.797
Item 2	0–3	2	0.270	0.787
Item 3	0–3	2	0.426	0.771
Item 4	0–3	1	0.479	0.764
Item 5	0–3	2	0.371	0.776
Item 6	0–3	1	0.645	0.745
Item 7	0–3	1	0.498	0.764
Item 8	0–3	1	0.486	0.764
Item 9	0–3	2	0.421	0.771
Item 10	0–3	2	0.632	0.747
Item 11	0–3	1	0.474	0.765

Measuring internal consistency

Cronbach's alpha for the OBQ11-T total score was 0.785, indicating acceptable internal consistency. Each item in the OBQ11-T was also shown to be reliable [28] (Table 4).

In summary, these results showed that OBQ11-T valid and reliable instrument to evaluate OB of healthy individuals.

Discussion

OB is often described as one of the main parameters in health and well-being [8,9,29]. The literature shows the importance of evaluating OB for occupational therapists [30,31]. In Turkey, there is a need for an instrument that evaluates OB. This study was conducted to evaluate the validity and reliability of the OBQ11-T. Our results demonstrate that the OBQ11-T is a valid and reliable tool for assessing OB in healthy individuals.

Uhrmann et al. [32] evaluate feasibility and face validity of Norwegian version of the 11-items Occupational Balance Questionnaire (OBQ11-N). The researchers stated that participants completed the questionnaire in 5–10 min OBQ11-N. Similarly, in our study the participants stated that the completed the questionnaire in 5–10 min. This shows feasibility of OBQ 11-N and OBQ 11-T. In addition to this Uhrmann et al. [32] found item 9 (Sufficient variation between doing things I must and want) was ambiguous. Similarly in our study the participants defined item 9 as an ambiguous. This item sentence structure complexity may be an explanation for these results.

We determined that item 1, about not having too much to do in a week, had the lowest factor loading. This result may be due to the profile of our sample group, as most of the participants were employed (91.2%). Working hours comprise a large proportion of an individual's time, which could explain why this item did not appear to effectively measure OB.

In terms of test–retest reliability results, Wagman and Håkansson [7] reported a Spearman's Rho value of 0.926, similar to this result in our study, at 0.922. However, in our study item 6 (Balance between

physical, social, mental, and restful occupations) and item 7 (Satisfaction with how time is spent in everyday life) show fair reliability. Possible explanation of this results are; both of the items could be change in everyday life of individuals according to have something doing.

Uhrmann et al. [32] stated that the OBQ11-N had clear, applicable, and valid items and was a useful scale for evaluating factors related to OB. They reported that respondents requested only a few adjustments and only minor modifications were made. The researchers attributed their results to the similarities between the Norwegian and Swedish languages. Similarly, we also made only minor modifications in our study. In Turkish 'Intellectual' word refers to the 'enlightened person'. Thus the researchers added 'mentally' word with a parantheses to provide clarity. This similarity suggests that the OBQ may be a culture-free instrument. Indeed, Wagman and Håkansson [7] stated in their study that as the OBQ is not based on specified occupations, it may transcend cultural differences. However, this conclusion should be supported with further prospective studies in other languages.

Our analyses of the validity and reliability of the Turkish version of the OBQ11 supports that this tool is valid and reliable and evaluates OB in individuals aged 19 and older. However, further studies including different populations (such as university students, working individuals, retirees) and disability groups are needed. In addition, a more thorough investigation of the psychometric properties of the OBQ11-T is warranted.

Study strengths and limitations

The main limitation of our study is the use of the convenience sampling method, which precludes generalization of our findings. One of the strengths of our study was that the number of cases was sufficient [33]. In addition, the sample included individuals with varying education level. Another strength is that this study was conducted in collaboration with the developers of the original OBQ. Our results should be replicated in different groups.

Comparing the resulting OBQ11-T with the original Swedish version, no major differences were found and minor issues were addressed during the development process. In conclusion, the process has resulted in a Turkish version of the OBQ11, the OBQ11-T, which appears to be feasible and have good validity and reliability.

Disclosure statement

No potential conflict of interest was reported by the authors.

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