Turkish validation of a new scale from older people's perspectives: Older people's quality of life-brief (OPQOL-brief)

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ABSTRACT

Introduction: There are various 'quality of life' scales developed for older people. Although quality of life is a subjective concept, most of these scales are based on expert opinions rather than perspectives of older people. The aim of this study is to evaluate validity and reliability of Older People's Quality of Life-brief scale (OPQOL-brief), which is based on perspectives of older people, in Turkish population.

Methods: A cross-sectional study was implemented in a Geriatric medicine outpatient clinic. Total number of 168 older patients who speak in Turkish fluently were recruited. Comprehensive geriatric assessment and OPQOL-brief was applied to all participants together with another quality of life scale validated in Turkish population, CASP-19 (Control, Autonomy, Self-realization, Pleasure). Validity was evaluated with construct validity, convergent validity and discriminant validity. Reliability was assessed with internal consistency and test-retest reliability.

Results: Mean age of the study population was 73.3 ± 5.9 years. Female participants were 64.9% (n = 109). Internal consistency was assessed by Cronbach's α coefficient. OPQOL-brief scale demonstrated high internal consistency (Cronbach's α = 0.876). Test-retest reliability was assessed by interclass correlation coefficient (ICC) and showed high reliability (ICC = 0.98, 95%CI = 0.96-0.99, p < 0.001). Strong and significant correlation was detected between OPQOL-brief and CASP-19 scales (r = 0.763, p < 0.001).

Conclusion: Turkish version of OPQOL-brief has acceptable validity and reliability in Turkish population. The scale can be used to measure quality of life of older people.

1. Introduction

The population of the world is ageing. According to World Population Prospects the 2017 revision, the number of people 60 years or over in the world is 962 million in 2017 and increasing to 2.1 billion in 2050. The growth of older people population is faster than younger age groups (United Nations, 2017). Increase in older population is seen in Turkey as it is seen in all over the World. The number of people aged 65 years or over in Turkey is 6.6 million and its proportion to all population is 8.3% (Turkish Statistical Institute, 2016).

While the population is aging, it is important to understand that long life years are worth-living. Various medical problems may be seen in older people due to decrease in physical and cognitive function with aging. Loneliness and chronic metabolic disorders may cause to emotional problems and decrease the quality of life (QoL) in older adults

(Farzianpour, Hosseini, Rostami, Pordanjani, & Hosseini, 2012). The definition of quality of life according to WHO is 'individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns' (World Health Organization, 1997). Also quality of life is described as physical, cognitive, emotional and social well-being (Ware & Sherbourne, 1992). The increase in ageing population necessitates some interventions to improve older people's independence, activity, health, and social participation (Bowling, 2009). The evaluation of quality of life is an important point for policies intending to support active ageing (World Health Organization, 2002). Applying a proper scale to evaluate older people's quality of life is important. It could help physicians for the management of geriatric patients.

In 2009, Bowling et al have developed the Older People's Quality of Life Questionnaire (OPQOL).OPQOL composed of 35 items representing

life overall, health, social relationships and participation, in-dependence, control over life, freedom, area: home and neighborhood, psychological and emotional well-being, financial circumstances, and religion/culture has been validated in English population and was compared with other theoretical models. Original version of full OPQOL-35 (35 items) was demonstrated to have higher reliability and validity than other quality of life measures, CASP-19 (19 items) and WHOQOL-OLD (24 items) (Bowling & Stenner, 2011; Bowling, 2009). Additionally, OPQOL-35 has had prognostic value in research studies on older people (Bilotta et al., 2011). On the other hand, full OPQOL-35, such as CASP-19 and WHOQOL-OLD, is a long scale to perform in clinical and social practice. Hereby, Bowling et al developed OPQOL-brief (13 items), shorter version of OPQOL-35, in 2013. OPQOL-brief demonstrated significant reliability and validity in older English people (Bowling, Hankins, Windle, Bilotta, & Grant, 2013). OPQOL-brief includes all domains of OPQOL-35 except religion/culture. It is a unique short scale consuming less time and reducing research burden. Furthermore, OPQOL-brief is an original measure developing from older people's own thoughts. It has been utilized widely within research in older people (Bulamu, Kaambwa, & Ratcliffe, 2015) as a measure of quality of life for both cognitively normal and mildly to moderately impaired individuals (Bilotta et al., 2010; Bilotta, Bowling, Nicolini, Case, & Vergani, 2012; Bowling & Stenner, 2011; Bowling et al., 2013; Kaambwa et al., 2015, 2017; Milte et al., 2014).

Various QoL scales have been validated in Turkey, but a few (CASP-19 and WHOQOL-OLD) have been specialized for geriatric population and they were lengthy for the patient and the clinician in clinical practice (Eser, Saatli, Eser, Baydur, & Fidaner, 2010; Pinar & Oz, 2011). OPQOL-brief, like full version, covers fields of life elaborated by older people. Some of these fields (home and neighborhood, psychological and emotional outlook) are not enclosed by CASP-19 and WHOQOL-OLD. OPQOL-brief is separated from other QoL scales in terms of shortness, comprehensiveness and originality. We have chosen this scale, because it is practical, efficient, and fast to use. Furthermore, it is based on individual perspectives of older people rather than theoretical concepts. (Bowling & Stenner, 2011).

Here, the present study aimed to translate OPQOL-brief into Turkish and test whether it was valid and reliable among older people living in Turkey.

2. Methods

2.1. Sample

The data were collected in Hacettepe University Hospital outpatient clinic in Ankara, Turkey. A large number of patients from the surrounding provinces apply to Hacettepe University Hospital. Therefore, study population actually reflects the Middle Anatolia. A total of 30 patients are examined daily in Geriatrics outpatient clinic. There are 4 examination rooms in outpatient clinic. All patients who applied to outpatient clinic were asked to participate in the study. Response rate was 95%. Tests were applied to patients who participated in the study by face to face interview in a separate room. The patients who were 65 years and over, able to speak in Turkish and had normal cognitive function were recruited to our study. Cognitive function was assessed through medical examination and comprehensive geriatric assessment during outpatient clinic visit. None of the patients met Petersen criteria for Mild Cognitive Impairment or Diagnostic and Statistical Manual of Mental Disorders V criteria for dementia. Exclusion criteria were having active cancer, surgery or hospitalization history in the last month, acute infection, dementia, disabilities (amputations, stroke induced sequel, aphasia, hearing problems), active decompensated disease such as heart failure, acute myocardial infarction, acute stroke, COPD exacerbation. Patients mentioned before were excluded from the study, because acute medical problems and disabilities may prevent understanding the scale items and giving correct answers. One hundred and sixty eight patients

were recruited from outpatient clinic of geriatric medicine. The study was approved by the local Clinical Research Ethics Committee. The written informed consent was obtained from all participants.

2.2. Instruments

2.2.1. Older people's quality of life-brief questionnaire (OPQOL)

The OPQOL-brief was originated from OPQOL-35 questionnaire which has been validated on different ethnic samples and community dwelling older adults in Britain (Bowling, 2009; Bowling et al., 2013). The difference of present scale was that it was based on individual perspectives of older people about quality of life. Other QoL scales were based on theoretical concepts. OPQOL-brief has been validated in Britain, 2013 by Bowling et al. It consists of single item not involved in total score and 13 items mainly involved in total score. Participants were asked to choose one of five possible answers ('strongly disagree', 'disagree', 'neither agree nor disagree', 'agree', 'strongly agree', each one is scored from 1 to 5 respectively). The total score of OPQOL-brief is obtained by summing of each statement's point and it ranges from 13 to 65. Higher scores represent better quality of life (Bowling et al., 2013).

2.2.2. Control, autonomy, self-realization and pleasure (CASP-19)

CASP-19 scale which is a measure of quality of life in older adults has been developed by Hyde et al in 2003 (Hyde, Wiggins, Higgs, & Blane, 2003). It was composed of 19 statements. The scale involves four categories: Control, Autonomy, Self-realization and Pleasure. The participants were asked to select one answer which was often, sometimes, not often, and never. The answers were scored from 1 to 4 except 1, 2, 4, 6, 8 and 9th item. The latter items were scored from 4 to 1. All points were summed up and total score was calculated which was ranged from 0 to 57. Higher scores indicate better quality of life. CASP-19 scale has been validated in Turkish population (Turkoğlu & Adibelli, 2014).

2.2.3. Activities of daily living-Katz ADLs and Lawton Brody IADLs scale

Basic activities of daily living (BADLs) and instrumental activities of daily living (IADLs) correspond to levels of functional status. BADLs involve bathing, dressing, transferring, toileting, maintaining, continence and feeding. The Katz ADL contains six items: bathing, dressing, toileting, transferring inside of home, maintaining continence and feeding. Each item is scored with 1 point if the person can do the activity mentioned. The score is ranged from 0 to 6 (Katz, Ford, Moskowitz, Jackson, & Jaffe, 1963; Katz, Downs, Cash, & Grotz, 1970). Katz ADL has been validated in Turkish population (Arik et al., 2015). IADLs include shopping, telephone use, laundry, housekeeping, meal preparation, transportation, medication use and finances (Graf, 2008). The Lawton-Brody IADLs Scale has been developed in 1969 (Lawton & Brody, 1969). The person gets one point if he or she can do the activity mentioned. The score is ranged between 0 and 8.

2.2.4. Mini nutritional assessment-short form (MNA-SF)

It has been demonstrated that malnutrition has caused to deteriorate quality of life, increase in hospitalization and mortality. There are multiple screening tools to detect malnutrition. Mini nutritional assessment is widely used malnutrition screening tool in community dwelling older adults. It evaluates nutritional intake, mobility, involuntary weight loss, psychological stress or acute disease, presence of depression or dementia, body mass index or calf circumference. If the score is more than 11, it is defined as normal nutrition (Guigoz, Lauque, & Vellas, 2002). MNA long and short forms have been validated in Turkish population (Sarikaya et al., 2015).

2.2.5. Geriatric depression scale (GDS) -15 items

GDS is broadly used to detect depressive symptoms of geriatric population (Sheikh & Yesavage, 1986). It is composed of 15 items which are answered as 'yes' or 'no'. The score ranges between 0 and 15. Higher scores show that depression is more likely present. Turkish

version of GDS-15 item has been validated (Durmaz, Soysal, Ellidokuz, & Isik, 2018).

2.2.6. Mini mental state examination (MMSE)

MMSE is a cognitive screening test which is scored as 0–30 (Folstein, Folstein, & McHugh, 1975). It is composed of items such as orientation, memory, calculation, naming, language, and drawing. The scores 24 and over are accepted as normal cognitive function. It was showed that MMSE is a valid and reliable scale in the Turkish population (Gungen, Ertan, Eker, Yaşar, & Engin, 2002).

2.3. Turkish version of OPQOL-brief

Language validation was performed by the forward-backward translation method. The scale was translated into Turkish by a native speaker. Then a group of clinicians fluent in Turkish checked the translation of scale. A native English speaker who did not know original version of OPQOL-brief and concepts behind the tool translated the scale backward. Original translators examined the back-translation and confirmed the final version. Before using in this study, the final version of OPQOL-brief was tested in a little group of 30 patients. This little group had same characteristics with study population and was recruited from Geriatric Medicine outpatient clinic.

2.4. Reliability

In order to assess test-retest reliability, the scale was reapplied to 30 individuals 7–10 days after the first application. Since the scale was a questionnaire that patients answered the questions themselves, inter-rater reliability was not necessary.

2.5. Data collection

Katz ADLs, Lawton-Brody IADLs, MNA-SF, GDS, MMSE tests were performed routinely within comprehensive geriatric assessment during outpatient clinic visits. These tests are used to evaluate functional, cognitive and psychological status. Any impairment in these areas may affect quality of life (Gálvez-Cano, Chávez-Jimeno, & Aliaga-Diaz, 2016). So, the results of these tests were included in the study. All the tests were applied to patients by face to face interview in a time period of 50 min.

Chronic medical diseases, number of medications and demographic informations were recorded. Participants who had 3 or more medical diseases were categorized as patients with multimorbidity (Harrison, Britt, Miller, & Henderson, 2014).

3. Statistical analyses

Statistical analyses were performed by IBM SPSS Statistics for windows version 23.0 program. Continuous variables were presented as mean ± standard deviation for normally distributed variables and median (minimum-maximum) for skew distributed continuous variables. Categorical variables were presented as frequency (percentage).

The construct validity was tested using exploratory factor analysis (EFA) by means of principal component analysis (PCA) with varimax rotation. Cronbach's alpha coefficient was calculated to measure internal consistency accepting value > 0.70 as criterion (Bland & Altman, 1997). Test retest reliability was analyzed calculating the interclass correlation coefficient (ICC) between the scores obtained 7–10 days apart. ICC values > 0.75 mean good reliability and values > 0.90 mean excellent reliability (Koo & Li, 2016).

The convergent validity was assessed by correlation analysis between OPQOL-brief and KATZ, Lawton-Brody, GDS, MMSE, and CASP-19. The discriminant validity was analyzed by independent samples *t*-test between patients with and without multi-morbidity (3 and more diseases).

Table 1
General Characteristics of the Study Population.

		Patients (n = 168)
Age (years)		73 ± 6
Gender n (%)	Female	109 (64.9)
	Male	59 (35.1)
Education n (%)	Uneducated	39 (23.2)
	Primary School	70 (41.7)
	Junior High School	12 (7.1)
	Senior High School	17 (10.1)
	College and Above	30 (17.9)
Marital Status n (%)	Married	97 (57.7)
	Widow	68 (40.5)
	Single	3 (1.8)
Living Status n (%)	Couple	94 (56.0)
	Family Member	41 (24.4)
	Alone	32 (19.0)
	Caregiver	1 (0.6)
OPQOL-brief		53 ± 7
CASP-19		43 ± 10
MMSE		29 (18-30)
Katz ADLs		6 (3-6)
Lawton Brody IADLs		8 (2-8)
Yesevage GDS		1 (0-13)
MNA		14 (6-14)
Number of Drugs		4 (0-7)
Number of Comorbid Diseases		3 (0-7)

Data were presented as mean ± standard deviation or median (minimum-maximum).OPQOL-brief: Older People's Quality Of Life-brief; CASP-19: Control, Autonomy, Self-realisation, Pleasure; MMSE: Mini Mental State Examination; ADL: Activities of Daily Living; IADL: Intermediate Activities of Daily Living; GDS: Geriatric Depression Scale; MNA: Mini Nutritional Assessment.

The p value ≤ 0.05 was considered as statistically significant.

4. Results

Totally 168 patients were recruited in to the study. General characteristics of the participants are presented in Table 1.

Exploratory factor analysis was used to test construct validity of Turkish OPQOL-brief. Kaiser-Meyer-Olkin measure of sampling adequacy was 0.863, Barttlett's test of sphericity was statistically significant (Chi-square = 796.517, p < 0.01). Principal component analysis showed that uni-dimensional scale explains 40.05% of total variance. When one component extracted, factor loadings for all 13 items were over 0.40 (Table 2). This result indicated that all items should be retained in the scale. Means and standard deviations for OPQOL-brief items are presented in Table 2. It was shown that OPQOL-brief was highly reliable. Cronbach's alpha was 0.867 for all of the 13 items. This was similar to Cronbach's alpha obtained for the original version of OPQOL-brief at 0.856. Item total reliability correlations for all items exceeded the 0.30 threshold for being acceptable. Cronbach's alpha for OPQOL-brief was not enhanced if any of the items was deleted. This suggests that all items should be retained (Table 2).

The scale was re-applied to thirty participants for test-retest reliability. Achieved interclass correlation coefficient at 0.98 (0.96-0.99) signified that OPQOL-brief scale has excellent reliability (p < 0.001).

Pearson and Spearman rank correlations were performed between OPQOL-brief and CASP-19, Katz ADLs, Lawton Brody IADLs for convergent validity. Additionally Spearman correlation was performed between OPQOL-brief and Yesevage GDS. Correlation analysis results were shown in Table 3.

Results of discriminant validity showed that mean OPQOL-brief score was 51.6 ± 7.2 in patients with multi-morbidity (n = 94, 3 or more diseases) and 54.2 ± 5.8 in patients without multi-morbidity (n = 74). Statistically significant difference was reached at p value of 0.01.

Table 2
Means and Standard Deviations for OPQOL-brief Items.

Items	Mean (SD)	Item-Total Correlation	Cronbach's Alpha If Item Deleted (α for 13 item :0.867)	Factor loadings if one component extracted
I enjoy my life overall	2.07 (0.80)	0.581	0.855	0.675
I look forward to things	2.3 (0.95)	0.349	0.870	0.402
I am healthy enough to get out and about	2.1 (0.98)	0.534	0.858	0.597
My family, friends or neighbors would help me if needed	1.62 (0.65)	0.416	0.863	0.495
I have social or leisure activities/hobbies that I enjoy doing	2.13 (1.00)	0.624	0.852	0.688
I try to stay involved with things	1.92 (0.81)	0.458	0.862	0.525
I am healthy enough to have my independence	2.07 (0.94)	0.654	0.849	0.726
I can please myself what I do	1.83 (0.74)	0.726	0.847	0.802
I feel safe where I live	1.61 (0.62)	0.539	0.858	0.647
I get pleasure from my home	1.64 (0.69)	0.569	0.856	0.681
I take life as it comes and make the best of things	1.91 (0.76)	0.541	0.857	0.637
I feel lucky compared to most people	1.95 (0.88)	0.573	0.855	0.661
I have enough money to pay for household bills	1.85 (0.70)	0.483	0.860	0.587

Table 3
Correlation Analysis between OPQOL-brief and Other Variables.

	OPQOL-brief	
	Correlation coefficient	p
CASP-19	0.763	< 0.001
Katz ADL	0.235	0.002
Lawton-Brody IADL	0.208	0.007
Yesevage GDS	− 0.240	0.002

OPQOL-brief: Older People's Quality of Life-brief, CASP-19: Control, Autonomy, Self-realisation, Pleasure, ADL: Activities of Daily Living, IADL: Intermediate Activities of Daily Living, GDS: Geriatric Depression Scale.

5. Discussion

Together with the increase in the older population, measuring quality of life has become important. Relevant measurement of quality of life has significant importance for clinicians, social and health care providers. In addition, cross cultural studies have gained significance with the spread of globalization (Bonomi, Patrick, Bushnell, & Martin, 2000). In this regard, evolving culturally adaptive scale is an important issue. This study examined the validity and reliability of Turkish version of OPQOL-brief scale. We demonstrated internal consistency of Turkish version of OPQOL-brief with a high Cronbach's alpha coefficient in older population. As far as we know, this is the first attempt to validate Turkish version of OPQOL-brief scale which is developed from perspectives of older people.

We found that Turkish version of OPQOL-brief was highly reliable. Cronbach's alpha coefficient, one of the methods analyzing consistency of results among items within a scale, is 0.867. This is a similar result with Cronbach's alpha of original OPQOL-brief which is 0.856. Stability is an important aspect for reliability of scales. Interclass correlation coefficient was used to analyze test-retest reliability. The ICC value is 0.98 and it demonstrates excellent reliability (Koo & Li, 2016). All the item-total correlations of OPQOL-brief scale exceed the acceptable threshold of 0.30. Item-total correlations range from 0.349 (Item 2: I look forward to things) to 0.726 (Item 8: I can please myself what I do). Factor loadings of 0.402 for item 2 and of 0.802 for item 8 supports these results. In original version of OPQOL-brief, item-total correlations range from 0.36 (Item 13: I have enough money to pay for household bills) to 0.67 (Item 1: I enjoy my life overall). Differences in correlations of same items probably arise from sociocultural dissimilarity of two populations. Factor loadings of all 13-items exceeded the 0.40 threshold level. There was no item that should be extracted from scale.

In our study, patients have answered the questions themselves. Some patients have misunderstood the item 'I look forward to things'. In fact, a positive answer to this item indicates psychological well-being. Probably due to cultural norms, our patients have considered it as insatiability. So, some patients have hesitated to give a positive answer for this item. We have solved this problem adding an explanatory sentence which is 'There are things that will make me happy when they happen'. Patients have easily understood all other questions.

Convergent validity is defined as different methods measuring a construct give similar results (Polit & Beck, 2012). The scale should correlate with similar scales. In our study, correlation analysis was performed between OPQOL-brief and another quality of life scale CASP-19. There was moderate to high correlation between scales. Functional ability is one of the components of quality of life. KATZ ADL and Lawton-Brody IADL which measure functional ability of an individual were weakly correlated with OPQOL-brief. Quality of life is a broad and multidimensional concept; functional ability is one dimension of quality of life. So the weak correlations obtained were actually expected. Like functional ability, emotional status is also one dimension of quality of life. As expected, Yesevage geriatric depression scale measuring depressive symptoms showed inversely and weak correlation with OPQOL-brief. Although they were weak, the significant correlation shows that quality of life measured by OPQOL-brief is associated with functionality and mood.

Discriminant validity shows measures that should not be related are in reality not related (Bonomi et al., 2000). As expected, older people with multimorbidity (3 or more diseases) scored lower in OLQOL-brief. This difference in two different groups supported the discriminant ability of the Turkish OPQOL-brief.

There were some limitations in our study. We recruited patients who applied to geriatric medicine outpatient clinic of a university hospital. Although this is a referral hospital and older people with different complaints are admitted, our population may not represent the general geriatric population. Patients included were relatively healthy and living in their own home, which may potentially create bias. However, these patients were chosen on purpose as this scale is filled by the patients themselves, and they should read and understand the questionnaire clearly. Further studies examining nursing home residents will be necessary to test the validity of OPQOL-Brief in more dependent population.

6. Conclusions

Turkish version of OPQOL-Brief is highly reliable to objectively determine the quality of life of older Turkish adults. It is a significant point that OPQOL-Brief raised from perspectives and own thoughts of older people.

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