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ORIGINAL ARTICLE / ORİJİNAL MAKALE

Reliability and validity of the Dari version of the World Health Organization quality of life (WHOQOL-BREF) questionnaire in Afghanistan

Dünya Sağlık Örgütü yaşam kalitesi ölçeği Afgan Dari sürümünün (WHOQOL-Bref-Dari) geçerliliği ve güvenilirliği

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ABSTRACT

Objective: The aim of this study was to culturally adapt and validate the WHOQOL-BREF into Dari language of Afghanistan. **Methods:** This study consisted of two stages: translation stage and psychometric analyses. Reliability analyses were done by Internal consistency (alpha value) and item total correlations and validity analyses consisted of convergent validity by SF-36 scale, confirmatory factor analyses and criterion validity (multiple linear regression by overall QoL item-q1) analyses. Acceptable type 1 error was considered as 0.05 in all analyses (n=1473). Analyses were done by using Lisrel v8.05 statistical package. **Results:** Item-domain correlations and -if item deleted-Cronbach alpha values detected no problematic item. The range of alpha values is 0.79-0.80, except for the social relations domain (alpha=0.41). Confirmatory factor analyses revealed goodness of fit results as: GFI: 0.88, CFI: 0.83; and RMSEA: 0.073. Physical and Psychological domains of the WHOQOL-BREF was highly correlated with the related domains of the SF-36 (r=0.60 and 0.64). All of the known groups' categories were significantly sensitive to all domain scores of the WHOQOL ($p<0.001$). Multiple regression analysis revealed a R2 value of 35% and all domains. **Conclusion:**Afghan Dari version of the WHOQOL-BREF can confidently be used in clinical and population settings to assess the QoL of the people. Findings of the social relations domain should be interpreted with caution due to its poor psychometric power. Further studies are needed to address the social aspects of quality of life in Afghan population.

Keywords: Quality of life, World Health Organization, reliability and validity, Afghanistan

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ÖZ

Amaç: Bu çalışmanın amacı, Dünya Sağlık Örgütü Yaşam Kalitesi Ölçeği Kısa sürümünü (WHOQOL-BREF) Afganistan'ın Dari diline kültürel olarak uyarlamak ve psikometrik özelliklerini ortaya koymaktdır. **Yöntem:** Bu çalışma iki aşamadan oluşmaktadır: çeviri aşaması ve psikometrik çözümlemeler. Güvenilirlik, iç tutarlılık (alfa değeri) ve madde toplam korelasyonları ile araştırılmıştır. Ölçeğin geçerlilik çözümlemeleri, SF-36 ölçeği ile birleşim-ayrışım geçerliliği, doğrulayıcı faktör analizleri ve ölçüt geçerliliği (genel YK madde-q1 ile çoklu doğrusal regresyon) analizlerinden oluşmaktadır. İstatistik çözümlemelerde tip 1 hata sınırı 0.05 olarak kabul edilmiş, çözümlemeler Lisrel v8.05 ve SPSS 23 istatistik paketleri kullanılarak yapılmıştır. **Bulgular:** Bütün istatistik çözümlemeler Heart toplumundan gönüllülerden oluşan 1473 yetişkin birey üzerinde yürütülmüştür. Alfa değerleri aralığı, sosyal ilişkiler alanı (alfa = 0.41) dışındaki alanlarda 0.79-0.80'dir. Madde-alan korelasyonları ve-madde silinince-Cronbach alfa değerleri sonuçları, ölçeğin psikometrik açıdan sorunlu maddesinin olmadığını ortaya koymuştur. Doğrulayıcı faktör analizleri uyum iyiliği göstergeleri şöyledir: GFI: 0.88, CFI: 0.83; ve RMSEA: 0.073. WHOQOL-BREF'in fiziksel ve psikolojik alanları, SF-36'nın ilgili alanlarıyla orta-yüksek oranda korelasyon göstermiştir (r = 0.60 ve 0.64). Bilinen tüm grupların kategorileri, WHOQOL'un tüm alan puanlarına önemli ölçüde duyarlıydı (p <0.001). Çoklu regresyon çözümlemesi 0.35'lik bir belirleyicilik katsayısı (R2) değeri ortaya çıkardı. **Sonuç:** WHOQOL-BREF'in Afgan Dari versiyonu, insanların yaşam kalitesini değerlendirmek için klinik ve nüfus ortamlarında güvenle kullanılabilir. Sosyal ilişkiler alanının bulguları, psikometrik gücünün zayıf olması nedeniyle dikkatle yorumlanmalıdır. Afgan nüfusunda yaşam kalitesinin sosyal yönlerini ele almak için daha fazla çalışmaya ihtiyaç vardır.

Anahtar kelimeler: Yaşam kalitesi, Dünya Sağlık Örgütü, güvenilirlik ve geçerlilik, Afganistan

Introduction

There has been an increasing focus on measuring the quality of life (QoL) in clinical settings as well as evaluations of the effects of different interventions due to the increasing life expectancy in recent decades, beyond conventional health indicators. World health organization quality of life group (WHOQOL Group) defines for quality of life as "Individuals perception of their position in life in the context of the culture in which they live and the value systems they have about their goals, expectations, standards, and concerns".[1-3]

Quality of life assessments have been widely used in health services for different purposes, either in health inequalities research or in clinical practice, to decide alternative treatment methods. Both generic and disease specific quality of life instruments have been developed to for different purposes in medical practice mostly used in combination with each other. Well developed, globally accepted and widely used generic quality of life instruments give the chance of international comparisons to the researchers. In earlier decades, a variety of instruments have been developed to measure the quality of life in different countries, though most of them are appropriate only in their relevant populations. However, some are culture-free, and others can translate them into other languages for use in different societies after convenient development and localization. The World Health Organization (WHO) has developed a generic quality of life instrument which takes many subjective aspects of quality of life. The 100 item long (WHOQOL-100) and 26 item short (WHOQOL-BREF) versions of the WHOQOL that have been developed by the WHOQOL Group, serve as the official generic quality of life instruments of the WHO.[4] The

WHOQOL-100 covers six different domains and many of these domains seem to be cross-culturally important. It includes physical wellbeing, mental state, psychological state, social connections, individual's convictions and connections as salient features of the environment. Among the current QoL instruments available, the WHOQOL more likely to provide valid scores for comparison across community groups.[5] The only problem with WHOQOL-100 is that, it is not easy to respond because of its high number of items which makes the volunteer uncomfortable. [6-10]

The 26 item WHOQOL-BREF on the other hand, is one of the best among others and is available in more than 40 languages not only in normal populations but also recently in various diseases and conditions such as substance use disorder patients [11] and type two diabetes.[12-14] It has only 26 items as opposed to 100, though it aims to cover a broad range of quality of life facets divided into four main domains: The Physical, Physiological, Social, and the Environmental domains. The WHOQOL-BREF has been translated and validated into many languages in more than 40 countries so far but has not been validated in Afghanistan yet.[15] A globally used, brief and cross culturally accepted generic quality of life tool is needed in health inequalities research and medical practice in Afghanistan. Afghanistan is a multi-ethnic country with Pashtuns, Tajiks, Uzbeks and Hazaras making up most of the population although Dari is one of the languages mostly used by the people of Herat city in Afghanistan and most of them are comfortable with Dari language. Dari is the first official language of Afghanistan, also known as Farsi or Afghan Persian.

The aim of this study is to culturally adopt the WHOQOL-BREF into Dari language of Afghanistan and test the reliability and validity of the Dari version of the WHOQOL-BREF.

Methods

Instruments

WHOQOL-BREF

The WHOQOL-BREF is a 26-item brief version of the WHOQOL questionnaire. The WHOQOL-BREF covers four individual domains such as: Physical health (activities of daily living, dependence on medicinal substances and medical aids, energy and fatigue, mobility, pain and discomfort, sleep and rest, work capacity); Physiological health(bodily image and appearance, negative feelings, positive feelings, self-esteem, spirituality /religion/personal beliefs, thinking, learning, memory and concentration); Social Realtionships (personal relationships, social support, sexual), and Environmental health (financial resources, freedom/physical safety and security, health and social care: accessibility and quality, home environment, opportunities for acquiring new information and skills, participation in and opportunities for recreation/ leisure activities physical environment (pollution/ noise/ traffic / climate) issues. Higher WHOQOL-BREF scale scores indicate better quality of life.

Translation of WHOQOL-BREF 26 assessment into Dari language was authorized by World Health Organization according to subject ID 278331 Permission request for WHO copyrighted material.

SF-36

SF-36 is an abbreviated name of Medical Outcomes Study (MOS) 36-Item Short Form. It was developed by Ware JE. et al [16] and validated to Dari by Shayan NA et al. [17] Its objective is to satisfy minimum psychometric standards necessary for group comparisons involving generic health concepts. SF-36 was designed to measure physical and mental health (component summary scores) based on 8 health sub-dimensions: physical and social functioning, role limitations due to physical and emotional problems, mental health, vitality, bodily pain, and general health perception.

Linguistic and Cultural Adaptation

Cultural adaptation of the WHOQOL-BREF into Dari has consisted of two phases: translation phase, and the following cognitive debriefing (pilot) interviews. Forward translations were done by four independent translators and a consensus Dari version was developed by an expert linguist. The back translation of the Dari consensus version of the WHOQOL-BREF into English was done by a bilingual person. The Dari version was revised accordingly by a panel discussion with the translators, when any inconsistency was detected between the original English version and the back translated version.

Cognitive debriefing interviews were carried out on 30 healthy individuals. Following the completion of the questionnaire, everyone was asked to give their feedback about each of the items and response scales of the WHOQOL-BREF and each of the instruction sentences of the instrument. They were asked to tell: (a)" Whether they were able to understand each of the items and each of the instruction sentences or not?" (b) "If there is any word or phrase that they did not understand" if so, (c)"how would they rephrase the question or the sentence?". Eventually, agreed changes were made on the field trial WHOQOL-BREF Dari version.

Finally, the respondents were also asked to do Thurstone sort card exercise to confirm the correct order of response options in Dari version. It took almost 10 minutes for everyone to complete the questionnaire. The volunteers were able to understand all the items and instructions with minimal modifications.

Study sample and Data collection

Field trial sample is a representative sample of Herat City, Afghanistan. The 2018 census of the Herat was around 270 000 [18] The number of households is around 45 000 in the city. The sample size of the study was calculated as 1500, taking the multidimensional poverty rate to be 24.9%; design effect for education 1.82; acceptable sampling error 3%, with a confidence level of 95%. [19]

This study sample was chosen by using a district based multistage (stratified, cluster sampling) sampling method. Volunteers consist of both healthy and unhealthy (who stated that they have at least one or more medical condition receiving some form of medical care) aged 18 or above. Only one adult was selected from each of the households. 1473 persons participated (804 were males and 669 females) to the study. The participation rate was 98.2%. The gender imbalance was due to the higher willingness of men to participate to the study than women. The inclusion criteria were being over age 18 and speaking the Dari language. Questionnaires were administered by medical school students during face-to-face interviews.

Psychometric analyses

Psychometric analyses of the WHOQOL-BREF Dari version is consisted of scale distribution properties and item analyses followed by internal consistency and validity analyses.

Distribution properties

Minimal acceptable limits for Floor and Ceiling value percentages were considered as ≤ 10% [20] and Skewness and Kurtosis limits as 1.0. [21]

Reliability analyses

Both reliability and Validity analysis were based on confirmatory approach. Internal consistency (IC) of the individual domains were tested by Cronbach's alpha.[22] Alpha value refers to the degree to which all the items of the scale really measure the same concept and, 0.70 and above indicates a good internal consistency.[22] Another internal consistency measure used in this study is "item-total" correlations that reveals item success. If this happens for all questions, it can be said 100% item success for the scale.

Identifying potential problematic items

We used two different approaches: (a) "If item removed alpha values" and item scale correlations were used to detect any problematic items. If a question is a potentially problematic item question, the scale alpha value obtained when the question is removed will be greater than the alpha value calculated without removing the question (b) A potentially problematic has a correlation coefficient lower than 0.30 with its own dimension score. For any item, we conclude that this item is a problematic item, if both of these occur.

Validity analyses

Convergent validity, known groups' (discriminant) validity and confirmatory factor analysis was employed for the assessment of construct validity of the WHOQOL-BREF Dari version. Criterion validity was assessed by correlating each of the domain scores with general quality of life item (q1) of the WHOQOL-BREF.

Convergent validity

Convergent validity analysis aims to demonstrate a correlation between the two measures' conceptually related dimensions. SF-36 was used to test convergent validity of the WHOQOL-BREF in this paper.

Discriminant and Known group's' validity
Gender, education, social class and presence of any illness were used for known groups'/ discriminant analyses. The discriminative ability of the instrument between a subgroup were assessed by Student's t test indicating the known groups validity of the measurement. Effect size statistics (i.e. mean differences divided by pooled sd.) were computed to determine the magnitude of the difference in mean scores [23]. A Cohen's D (ES) value closer to 0.20 indicates a small effect, whereas 0.50 a medium and 0.8 and over a big effect in two groups' comparisons.

Factor Analysis
A third approach that was used in this manuscript for testing the construct validity of the WHOQOL-BREF-DARI was the Confirmatory Factor Analyses (CFA). Fit indices generated by CFA were used to test the original WHOQOL scale structure of the Dari version of the WHOQOL-BREF. Root Mean Square Error Approximation (RMSEA) and Comparative Fit Index (CFI) Tucker Lewis Index (TLI) and Root Mean Residuals (RMR) and Chi square tests. Critical acceptable threshold is 0.90 for CFI and TLI and 0.08 for RMSEA and RMR. [21]

Criterion validity
Linear regression analysis showed the correlations of the WHOQOL-BREF domain scores with each general quality of life item (q1) of the WHOQOL-BREF.

Univariate analyses were done by using SPSS v23 and the confirmatory factor analysis was examined by LISREL 8.5. Type 1 error is taken as 0.05 in all statistical analyses.

Results
Socio-demographic characteristics
Of the 1473 respondents, 54.6% men and 45.4% women with a mean age of 37.6±14.2 years (min 14, max 86). The 38.0% of the study sample was 18-29 years old, while 14.8% was 30-39; 24.6% was 40-49 years old and 22.6% was 50 and over. Only 47.25% (n=696) of the respondents were graduated from any school; 41.96% (n=618) were illiterate and 10.79% (n=159) were just how to read and write. Only 25.4% of the respondents perceived themselves as poor; 46.0% as moderate and 28.6% as good or wealthy. About one quarter of the respondents self-reported an existence of an important illness (25.2%). Only 6.5% was current smokers and a great majority of the study sample (89.1%) stated that they had no access to health services.

Psychometric results
Scale distribution
Item frequency analyses showed that the floor and ceiling effects range for each domain are in acceptable limits for all domains. The range of the floor effects was 0.0 to 0.3% and ceiling effects was 0.1 to 3.2% for the domains of WHOQOL-BREF. Skewness and Kurtosis values showed that all the four domain scores were normally distributed (<1.0) **(Table 1).**

Reliability Results
The Cronbach's alpha values of all the domains were satisfactory (0.79 to 0.80) except for the social relationships domain which is quite low (0.41). Item-scale correlations and "if item removed alpha" values indicated no problematic items of the WHOQOL-BREF Dari version. All the 26 items were correlated with their own domains higher than with other domains, indicating 100% "item success". **(Table 1).**

Validity Results
Physical health and Psychological domain scores of the WHOQOL- BREF and SF-36 are highly correlated each other (acceptable

Table 1. Item descriptive statistics and reliability properties (Cronbach's alphas, correlation coefficients)

Dimensions of the WHOQOL-BREF	Mean±sd#	Floor %	Ceiling %	Skewness (SE)	Kurtosis (SE)	α (if item deleted alpha range)	Cor. range (r)	Item Success Rate %
Physical health	62.6±17.2	0.0	0.5	-0.32(0.06)	-0.11 (0.13)	0.79 (0.74-0.78)	0.63-0.75	100
Psychological health	60.5±17.8	0.0	0.6	-0.17(0.06)	-0.42(0.13)	0.79(0.73-0.78)	0.62-0.79	100
Social Relations	62.1±19.4	0.3	3.2	-0.30(0.06)	-0.11(0.13)	0.41(0.22-0.37)	0.65-0.75	100
Environmental health	52.0±16.4	0.2	0.1	-0.06(.06)	0.24(0.13)	0.80(0.77-0.79)	0.60-0.70	100

α: Cronbach's alpha value; Cor. range: Range of Item-scale correlation coefficients (corrected for overlap);
Item success: summary success percent for items discrimination (indicates significant correlation between item and its own dimension scores)

convergence) (r=0.52 and 0.60), whereas environmental domain of the WHOQOL is not correlated with neither physical health nor psychological sub dimensions of the SF-36 (poor convergence) as expected. Social relationships domain of the WHOQOL also fails to be correlated with the social dimension of the SF-36 indicating poor convergence. **(Table 2).**

As for the know groups validity analyses, all the known categories of the gender, level of education and social class were significantly sensitive to all the four domain scores of the WHOQOL ($p<0.001$). The WHOQOL-BREF Dari version was able to discriminate between healthy and chronic ill people

Confirmatory factor analyses showed acceptable goodness of fit results for RMR (0.066) and RMSEA (0.073), but GFI (0.88) and CFI (0.83) values were lower than acceptable limits **(Table 4).**

Multiple linear regression analysis -using overall QoL item (item q1) as the dependent variable- revealed a R^2 value of 35%. All the four domains of the WHOQOL-BREF-Dari version except that of Social relationships domain (β =0.03) could explain the variance of the q1. The best predicting domain is the Environmental domain on overall QoL. Social relationships domain could not predict overall QoL at al. **(Table 5).**

Table 2. Correlation between the dimensions of the WHOQOL-BREF and SF-36 scales for convergent-discriminant validity

Dimensions	SF-36							
	Physical function	Role limit. Physical health	Pain	General health	Energy	Social function	Role limit. Emotion	Emotion. Well-being
SF-36 Dimension scores	72.51±22.72	56.19±33.28	69.11±25.11	61.48±21.81	61.77±20.18	68.15±22.08	57.02±37.13	64.11±19.65
WHOQOL-BREF								
Physical health	0.517**	0.375**	0.580**	0.638**	0.599**	0.506**	0.336**	0.548**
Psychological health	0.332**	0.266**	0.440**	0.580**	0.585**	0.473**	0.305**	0.602**
Social Relations	0.162**	0.133**	0.194**	0.309**	0.320**	0.230**	0.126**	0.320**
Environmental health	0.100**	0.114**	0.185**	0.304**	0.292**	0.202**	0.122**	0.284**

*** p<0.01*

Women were much worse than men in terms of physical health, psychological and environmental dimensions, whereas social class has moderate to high level of discriminable effect on all the four domains. The physical health domain score was more negatively affected by having a chronic illness (ES= 1.23) compared to other domains (ES range= 0.27-0.43). Environmental domain was more sensitive to socioeconomic independent variables such as level of education (ES=0.78) and social class (ES=0.75) and BMI was moderately sensitive to physical health domain (ES=0.31) and Environmental domain (ES=0.36). **(Table 3).**

Linear regression analysis showed the correlations of the WHOQOL-BREF domain scores with each general quality of life item (q1) of the WHOQOL-BREF.

Discussion

Recent political developments in Afghanistan are expected to have positive influences on the health sector of the country that covers broader approach to determinants of health and the assessment of the outcomes of the health interventions both in public health and in the clinical practice. [24] In order to measure well-being of the people living in Afghanistan, standard quality of life assessment need to be used [25]. This study assessed the cultural adaptation of the Afghan Dari language version of the WHOQOL-BREF.

Cultural adaptation of the original WHOQOL-BREF to Dari language followed the international translation procedures including forward and backward translation. In the Herat city, the 4th largest city of the country. The large sample size of the study

Table 3. Known groups validity of the WHOQOL-BREF Dari version

	Gender	Education	Social Class	illness
	Female<Male	Illiterate< (Literate only =Educated)	Lower<middle<upper	ill<well
Physical health	0.56***	0.34***	0.47***	1.23***
Psychological health	1.59***	0.39***	0.63***	0.43***
Social Relations	0.30***	0.32**	0.41***	0.39***
Environmental health	1.09***	0.78***	0.75***	0.27**

Effect size differences in WHOQOL-BREF dimension scored by socio-demographic and physical health conditions.

Effect Size (Cohen's d): two groups: 0.2 low, 0.5 medium, 0.8 large; three or more groups: 0.2 low, 0.5 medium, 0.8 large;
** p<0.05, ** p<0.01, *** p<0.001*

† Body Mass Index categories: <18.5=1; 18.66 to 24.99=2; 25.00 to 29.99=3; 30.00 and over=4

allows generalizability of the results to Dari language, one of the leading official language of Afghanistan.

The distribution properties of the WHOQOL-BERF Dari version were found quite satisfactory with very low floor and ceiling effects and acceptable Skewness and Kurtosis value limits, consistent with the results of several studies in the literature .[9,12,26-27] Internal consistency of the scale was assessed by Cronbach Alpha value and three of four domains of the WHOQOL-BREF Dari version revealed adequate Cronbach Alpha values (0.79 to 0.80) except for Social Relations domain which had Cronbach Alpha value of 0.41. Similar lower Cronbach Alpha values of Social Relations domain were obtained in some other studies conducted in Bangladesh, Denmark, UK, Norway, Iran, Japan, Sierra Leone & Turkey. [1,13,28-30]

A possible explanation of this low internal consistency in social relations domain might be the misconception of the items by the illiterate respondents. A stratified analysis of illiteracy/literacy (not present in the results) showed that the Cronbach Alpha value is 0.38 in illiterate people whereas it is 0.43 for literate people. Additionally, we felt the necessity of exploring existence of any problematic item and we run "if item deleted alpha values" for each of the domains and found no problematic item in any of the domains of WHOQOL-BREF Dari version. What makes us comfortable is the moderate to high item-domain correlations (0.60-0.79) for all domains of the WHOQOL-BREF Dari version. We tested the construct validity of the WHOQOL-BREF Dari version by three different methods: Convergent-divergent validity, known groups validity and the factor analyses. The generic SF-36 scale was used to assess the convergent validity of the WHOQOL-BREF Dari version. The correlation coefficients between the WHOQOL-Bref Physical dimension score and the dimensions of SF-36 related to physical well-being were obtained higher than the correlation coefficients between the WHOQOL-Bref /Psychological dimension score and the dimensions of SF-36 associated with mental/emotional health. Social relations domain and the environmental domain scores of the WHOQOL-BREF Dari had poorer convergence with the related domain of the SF-36. Our results are consistent with some other papers in which, the environmental health domain of the WHOQOL-BREF had no significant correlations with any of the domains of the SF-36. [31] The poor convergence of the WHOQOL-

Table 4. Summary reports of confirmatory factor analyses of the WHOQOL-BREF Afghan Version

Fit indices	Value
RMSEA	0.073
CFI	0.83
GFI	0.88
TLI	0.81
Stand.RMR	0.066
χ^2	2174
Df	246

Table 5. Criterion validity of the WHOQOL-BREF Dari version (with overall quality of life item-q1)

R2=0.35			Collinearity Statistics	
Dependent variable (overall quality of life item-q1)	Std. Beta	p	VIF	Std. Eror
Constant		0.007		
Physical health	0.10	0.001	0.51	1.97
Psychological health	0.28	0.000	0.45	2.30
Social Relations	0.03	0.161	0.74	1.36
Environmental health	0.30	0.000	0.73	1.37

VIF: Variance Inflating Factor

BREF environmental domain with neither physical nor psychological domain scores may be due to its content of socio-economic drive. Hence environmental health domain represents the socioeconomic well-being of the respondent and was not sensitive to any health related concepts which was shown in several studies including original WHOQOL group papers. [7,27,30,32]

Lower environmental domain scores were also obtained from the less developed European study sites such as Romania and Turkey in the WHOQOL global study mentioned above. Our known groups validity results also confirmed the higher sensitivity of the environmental health score to the socioeconomic indicators: quite big effect size figures were obtained for education (0.78) and social class (0.75) variables. On the other hand, several studies indicated that there is not a good convergence between WHOQOL and SF-36.[30,33-34]

The known groups validity analyzes are performed to show previously proven relationships. The women, the ill and low educated people and also those people who belonged to a lower social class are previously known as disadvantaged groups in the community from the perspective of quality of life. Our results indicated that, all four domains of the WHOQOL-BREF Dari version are sensitive to gender, education, social class, objective health status, consistent with literature findings. [6,8,35]

The confirmatory factor analyses results, as the third method of testing the construct validity of the WHOQOL-Dari version showed moderate to high goodness of fit results. RMSEA and RMR values were both in acceptable limits (<0.08) whereas confirmatory fit indices were around 0.83 to 0.88 showing moderate fit to the original WHOQOL-BREF scale structure. In contrary with the satisfactory RMR and RMSEA findings, moderate CFI results were obtained

in several other WHOQOL validation studies, including the original WHOQOL development study. [15,36-37]

Criterion validity of the WHOQOL-Dari version is shown by a linear regression of the Overall QoL item of the WHOQOL over the domain scores. The best Beta values were obtained for Physical health and Social relations domains. The only non-significant domain is the environmental domain. A similar finding was reported in Turkish [30] and Polish [31] validation studies. This is also consistent with our finding that environmental domain is the weakest related domain with illness variable, that was shown in the known groups' validity findings of our study.

There are several limitations of this study. First, the WHOQOL-BREF Dari has been face to face administered to the respondents due to the high portion (about 42%) of illiterate population, which might positively bias the results of this study. Secondly, it was not always possible to fulfill personal privacy during the interviews. And finally, the men/women participation rate was higher in favor of men due to restrictions of social inclusion of the women to the Afghan community.

Conclusion

As we know, this is the first study on Afghanistan's general population demonstrating the relation between socio-demographic variables and QoL domains. Afghan Dari version of the WHOQOL-BREF can confidently be used in clinical setting and in population level to assess the QoL of the people. The results of the social relations domain should be interpreted with caution due to its poor psychometric power. Further studies are needed to address the social aspects of quality of life in Afghan population.

Abbreviations
WHOQOL-Bref: World Health Organization Quality of Life- Bref
QoL: Quality of Life
RMSEA: The Root Mean Square Error of Approximation
CFI: Confirmatory factor analyses
SF-36: Short form survey 36
GFI: comparative fit index
RMR: Root Mean Square Residual
TLI: Tucker-Lewis index
Df: degrees of freedom
χ**2**: chi square

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Ethical Declaration: The study was ethically approved by Ghalib University Ethics Committee. A detailed description of the study, benefits, confidentiality and the informed consent procedures was explained during the initial contact with prospective participants prior to their participation. All the collected information from this study would be treated confidentially and only accessible by the members of the research.
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Conflicting İnterest : The authors declare that they have no competing interests.
Consent for publication: A written informed consent was gained for all participants.

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