

Translation and validation study of Quality of Life Questionnaire for Physiological Pregnancy at Sandeman Provincial Hospital, Quetta, Pakistan

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Abstract

Objective: To examine the psychometric properties of the Urdu version of Quality of Life Questionnaire for Physiological Pregnancy.

Methods: The cross-sectional study was conducted from August 1 to October 31, 2020, at the Obstetrics and Gynaecology department of Sandeman Provincial Hospital, Quetta, Pakistan. The Quality of Life Questionnaire for Physiological Pregnancy was translated into Urdu by using a forward-backward procedure. The test-retest reliability was assessed through Cronbach's alpha reliability analysis. The validity of the translated questionnaire was constructed by using exploratory factor analysis through principal axis factoring extraction and Oblique rotation with Kaiser Normalisation. The constructs were retained based on extracted communalities. Data was analysed using SPSS v 21.

Results: The Urdu version of the questionnaire exhibited acceptable test-retest alpha values of 0.780 and 0.812 at two-time points, with an overall value of 0.790. All items showed good stability with intraclass correlation coefficient values of >0.80. The Kaiser-Meyer-Olkin measure for factor analysis was 0.812. Barlett's Test of Sphericity was significant ($p < 0.05$). Three factors explaining the variance were extracted and the loading values for all nine constructs were acceptable (>0.40). All items of the translated version were retained, proving the validity of the Urdu version of the questionnaire.

Conclusion: The translated version of Quality of Life Questionnaire for Physiological Pregnancy was found to be a valid and reliable instrument for the assessment of quality of life for pregnant women in regions where Urdu is the prime language of communication.

Keywords: Quality of life, Pregnancy, Translation, Validation, Urdu. (JPMA 71: 2582; 2021)

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Introduction

Pregnancy and the transition to motherhood is a wonderful experience. Where pregnancy brings a sense of self-fulfilment, contentment and excitement, fear related to child birth and insufficient preparation for the upcoming mothering responsibilities have also been reported.¹ As pregnancy continues, emotional and physiological transformations result in a change of bodily systems and functions.² Although these changes are transitory, pregnant women are faced with many challenges. Correlating, pregnant women often report a lack of self-confidence, feeling anxious and depressed, and are susceptible to unwanted events.³ This eventually results in deterioration of the well-being of pregnant women, affecting the overall quality of life (QoL).⁴ Within this context, QoL is a multi-factorial and complex phenomenon. While different schools of thoughts have defined QoL based on its various aspects or areas,^{5,6} Barofsky concluded that definitions of a comprehensive concept of QoL change with time and objectivity.⁷ This is logical because precise methods of assessing QoL are missing in literature and the

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one used still have their limitations.⁷ Therefore, using a combination of both generic and disease-specific tools is often recommended.⁸

Regarding QoL in pregnancy, difficulties, problems and pathological aspects of pregnancy have been reported.⁹ But the relationship between the physiological process of pregnancy and a woman's QoL is least discussed. In agreement, Vachkova et al. pointed out that the available questionnaires are focussed on specific problems in pregnancy and do not evaluate women's overall well-being and QoL.¹⁰ Therefore, they decided to construct a pregnancy-specific QoL questionnaire and to evaluate its sensitivity in evaluating QoL during a normal pregnancy. In comparison to the generic abbreviated version of World Health Organisation Quality of Life (WHOQOL-BREF) instrument,¹¹ they developed the Quality of Life questionnaire for Physiological Pregnancy (QOL-GRAV) and compared the results of WHOQOL-BREF and QOL-GRAV.¹⁰ Initially, QOL-GRAV comprised 12 items presented in a five-point Likert form. The items reflected the four QoL domains of physical, psychological, social relations, and environment, as proposed by WHOQOL-BREF, and were also supplemented by open-ended questions for more detailed specifications of changes during pregnancy and coping strategies. After validation, the final version of QOL-

GRAV contained 9 items that were presented in a five-point Likert form. Vachkova et al. concluded that QOL-GRAV can sensitively and accurately capture the experiences of pregnant women that significantly affect their QoL. Therefore, QOL-GRAV was found to be the only pregnancy-specific questionnaire that should be used in clinical and social research to get a better insight into pregnant women's QoL in place of a generic QoL questionnaire.¹⁰

Consequently, being the only psychometrically tested questionnaire available to measure QoL in pregnancy, it seems essential to generate a validated Urdu version of QOL-GRAV, as Urdu is the lingua franca of Pakistan and one of 22 constitutionally recognised official languages in India.¹² As per approximations, Urdu has 170 million total speakers around the globe, making it the 11th most widely spoken language of the world.¹³ A psychometrically valid pregnancy-specific questionnaire that should be able to assess the QoL during antenatal care for territories where Urdu is used as a medium of communication is of critical value as QoL during pregnancy is associated with an increased risk of preterm labour, intrauterine growth restriction (IUGR) and development of anxiety and depression.¹⁴ The current study was planned to generate a validated Urdu version of QOL-GRAV, and to examine its psychometric properties.

Materials and Methods

The observational, analytical cross-sectional study was conducted from August 1 to October 31, 2020, at the Obstetrics and Gynaecology department of Sandeman Provincial Hospital (SPH), Quetta, Pakistan. Sandeman Provincial Hospital was established in 1939 and is centrally located in Quetta city. Being a public healthcare institute, SPH is the facility of choice for the majority of the locals. After approval from the institutional ethics review board of the Faculty of Pharmacy and Health Sciences, University of Balochistan, Quetta, formal permission was sought and received through email from the developers of QOL-GRAV¹⁰ at the Department of Social Medicine, Faculty of Medicine, Charles University, Hradec Kralove, Czech Republic.

The QOL-GRAV is a 9-item questionnaire where items 7, 8 and 9 are reverse coded and are presented in a 5-point Likert format. The items of QOL-GRAV are: 1. To what extent do you feel that your physical changes associated with this pregnancy do not allow you to do what you need? 2. To what extent do you feel that your psychological changes associated with this pregnancy do not allow you to do what you need? 3. How worried are you about not being able to handle household chores? 4. How worried are you about carrying out the pregnancy successfully? 5. How worried are you about not being able to handle labour and

delivery? 6. Have you been forced to cut down on your physical activity during this pregnancy? 7. How satisfied are you with your partner now? 8. How satisfied are you with your social life now? 9. How satisfied are you with how you manage to adapt to this pregnancy?

Translation of the questionnaire was carried out according to the guidelines proposed by the International Society of Pharmacoeconomics and Outcomes Research and the World Health Organisation.^{15,16}

Three independent linguistic translators, who were native speakers of Urdu and were proficient in English, were involved in the translation process. The translators were blinded from each other for two reasons. First, the Urdu version needed to be conceptually as close as possible to the original. Second, an accurate translation into Urdu language was needed without any communal consultation.

Reverse translation from Urdu to English was carried out by another three independent translators. The translated versions were compared with the original QOL-GRAV by a panel of English and Urdu bilingual experts. The panel members were the translators, research supervisor, two gynaecologists, and two experienced researchers. Inadequate expressions, confusions and discrepancies were discussed and resolved during the panel discussion. The translated version was approved for a pilot study after a mutual consensus with an acceptable value of content validity index (CVI) of 0.85.

The Urdu version QOL-GRAV-U was piloted with pregnant women attending the Gynaecology Outpatient Department (OPD) for their routine antenatal check-up at SPH. For test-retest analysis, population correlation coefficient (*r*) was used as the effect size measure.¹⁷ Therefore, with a significant value of <0.05 and statistical power of 80%, a total of 30 respondents were approached for test-retest analysis at two time points with an interval of one week.¹⁸

The results were graded excellent, good and acceptable based on alpha values as reported in literature.¹⁹ At week one, the 9-item QOL-GRAV-U exhibited acceptable Cronbach's α value of 0.780 (test).

Parallel to the pilot study, the face and content validity of the translated questionnaire was also established. The respondents' observations and interpretations on the QOL-GRAV-U were noted and resolved in a second expert panel discussion. The resolved version was again presented to the respondents for their understanding and clarification. After a communal agreement between the expert panel and the respondents, the finalised version of QOL-GRAV-U was considered ready for field study (Annexure).

Annexure					
عمر					
تعلیمی قابلیت					
پیشہ					
آمدنی					
ازدواجی حیثیت					
رہائش					
حمل کا ہفتہ					
بچوں کی تعداد					
شوہر کی تعلیمی قابلیت					
شوہر کا پیشہ					
سوالات					
زیادہ سے زیادہ	بہت سارا	ایک اوسط	تھوڑا بہت	بالکل نہیں	آپ کس حد تک محسوس کرتی ہیں کہ اس حمل سے وابستہ آپ کی جسمانی تبدیلیاں آپ کو اپنی ضرورت کے کام کرنے کی اجازت نہیں دیتیں؟
					آپ کس حد تک محسوس کرتی ہیں کہ اس حمل سے وابستہ آپ کی نفسیاتی تبدیلیاں آپ کو ضرورت کے کام کرنے کی اجازت نہیں دیتیں؟
					گھر کے کام کا جھٹک سے نہ سمجھالنے کے بارے میں آپ کتنی پریشان ہیں؟
					کامیاب حمل ٹھرنے کیلئے آپ کتنی پریشان ہیں؟
					آپنی زچگی اور زچگی کے در کو نامسمبالنے کے بارے میں آپ کتنی پریشان ہیں؟
					کیا آپ کو اس حمل نے اپنی جسمانی سرگرمیوں کو کم کرنے پر مجبور کیا؟
					اب آپ اپنے ازدواجی ساتھی سے کتنی مطمئن ہیں؟
					اب آپ اپنی سماجی زندگی سے کتنی مطمئن ہیں؟
					جس طرح سے آپ اس حمل کو اپنائیں اس سے آپ کتنی مطمئن ہیں؟

Exploratory factor analysis (EFA) is a multivariate statistical procedure used to test construct validity. It measures how well the variables represent the number of constructs.²⁰ The sample size for EFA was calculated on the basis of 5-10 participants per variable.²¹ Consequently, 90 participants were needed, but the sample size was inflated by 20% to account for non-participation or dropout. As such the final sample size was 108 to generate good factor solutions. Women in the first trimester of a routine pregnancy, as proposed by the original developers¹⁰ were approached for data collection. Women willing to take part in the study, agreeing to offer long-term cooperation for test-retest analysis and having the ability of speaking, reading and writing Urdu, the national language of Pakistan, were enrolled.

The data were coded analysed using SPSS 21 with a two-tailed alpha value of 0.05. Frequencies and percentages were used to explain demographic variables. The test-retest reliability was assessed and interpreted through Cronbach's alpha reliability analysis.²² Intraclass correlation coefficient (ICC) via one-way random effects model with single measures was used to establish the stability of the construct.²² The ICC values of <0.50 = low, 0.50-0.75 =

moderate and >0.75 = good were used in line with literature.²³ The validity of the QOL-GRAV-U was established by EFA through principal axis factoring extraction and oblique rotation with Kaiser Normalisation.²² The measure of sampling adequacy for the factor analysis was assessed through Kaiser-Meyer-Olkin (KMO) whose value (0.812) was rated meritorious.²⁴ Also, with chi-square value of 1032.43 and $p < 0.05$, Barlett's Test of Sphericity revealed relationship of data and suitability of EFA.²⁴

For the extracted communalities and loadings of three factors for QOL-GRAV-U, all the three matrixes of factor, pattern and structure were used to avoid probabilities of value suppression because of the factorial relationships [25]. Three factors explaining the total variance of 65% were extracted (Eigen values >1.0). For the retention of constructs, Field's proposal of communalities >0.30 was used.¹⁸

Results

In the pilot study comprising subjects, 19 (63.3%) were aged 26-35 years, 11 (36.7%) were postgraduates, and 21 (70%) had 9-16 weeks of pregnancy (Table 1).

Furthermore, the QOL-GRAV-U reported good Cronbach's

α value of 0.812 at week 3 (retest) that illustrated

Table-1: Demographic characteristics of the study respondents (pilot study).

Characteristics	n (%)
Age group (years)	
15-25	10 (33.3)
26-35	19 (63.3)
36-45	1 (3.3)
Locality	
Urban	30 (100)
Rural	-I
Education	
Illiterate	4 (13.3)
Matriculation	2 (6.7)
Intermediate	3 (10.0)
Graduation	10 (33.3)
Post-graduation	11 (36.7)
Occupation	
Housewife	19 (63.3)
Working women	11 (36.7)
Income (Pk. Rs.) *	
None	19 (63.3)
< 20,000	7 (23.3)
> 20,000	4 (13.3)
Pregnancy week	
1-8	9 (30.0)
9-16	21 (70.0)
Number of children	
Nil	9 (30.0)
1-3	18 (60.0)
>3	3 (10.0)
Husband' education level	
Illiterate	2 (6.7)
Matriculation	2 (6.7)
Intermediate	3 (10.0)
Graduation	6 (20.0)
Post-graduation	17 (56.6)
Husband' occupation	
Government employee	16 (53.4)
Businessman	14 (46.6)

*1 Pk. Rs = 0.0061 USD

Table-3: Demographic characteristics of the study respondents (field study).

Characteristics	n (%)
Age group (years)	
15-25	26 (24.1)
26-35	70 (64.8)
36-45	9 (8.3)
> 45	3 (2.8)
Locality	
Urban	66 (61.1)
Rural	42 (38.9)
Education	
Illiterate	20 (18.5)
Matriculation	21 (19.4)
Intermediate	10 (9.3)
Graduation	32 (29.6)
Post-graduation	25 (23.1)
Occupation	
Housewife	91 (84.3)
Working women	17 (15.7)
Income (Pk. Rs.) *	
None	91 (84.3)
< 20,000	10 (9.2)
> 20,000	7 (6.42)
Pregnancy week	
1-8	27 (25.0)
9-16	23 (21.3)
17-24	21 (19.4)
>24	37 (34.3)
Number of children	
Nil	13 (12.0)
1-3	76 (70.5)
>3	19 (17.5)
Husband' education level	
Illiterate	22 (20.4)
Matriculation	10 (9.3)
Intermediate	19 (17.6)
Graduation	22 (20.4)
Post-graduation	35 (32.4)
Husband' occupation	
Government employee	36 (33.3)
Businessman	72 (66.6)

*1 Pk. Rs = 0.0061 USD

Table-2: Test-retest reliability using intraclass correlation coefficient (ICC).

Constructs in QOL-GRAV	Intraclass Correlation Coefficient**	95% Confidence Interval	p-value
To what extent do you feel that your physical changes associated with this pregnancy do not allow you to do what you need?	0.801	0.828-0.911	0.002
To what extent do you feel that your psychological changes associated with this pregnancy do not allow you to do what you need?	0.822	0.721-0.919	0.045
How worried are you about not being able to handle household chores?	0.831	0.743-0.920	0.021
How worried are you about carrying out the pregnancy successfully?	0.877	0.812-0.900	<0.001
How worried are you about not being able to handle labour and delivery?	0.809	0.812-0.903	0.007
Have you been forced to cut down on your physical activity during this pregnancy?	0.828	0.884-0.910	0.035
How satisfied are you with your partner now? (R)*	0.810	0.734-0.908	0.002
How satisfied are you with your social life now? (R)*	0.873	0.800-0.909	0.008
How satisfied are you with how you manage to adapt to this pregnancy? (R)*	0.840	0.811-0.915	0.004

*Reverse coded; ** ICC* values using One Way Random effect model (Model 1), single measures, 95% Confidence Interval

Table-4: Survey items, communalities and rotated factor loading (n=108).

Constructs in Quality of Life Questionnaire for Physiological Pregnancy (QOL-GRAV)	Factor Matrix ^a			Structure Matrix			Pattern Matrix ^b			Communalities Extraction
	Component			Component			Component			
	1	2	3	1	2	3	1	2	3	
1.	0.744	-0.028	-0.474	0.882	-0.024	0.189	0.883	-0.009	-0.005	0.778
2.	0.702	-0.094	-0.483	0.853	-0.088	0.146	0.861	-0.072	-0.042	0.734
3.	0.780	0.184	0.183	0.558	0.134	0.698	0.428	0.127	0.601	0.675
4.	0.425	0.339	0.405	0.137	0.287	0.621	0.007	0.272	0.613	0.559
5.	0.386	-0.130	0.699	-0.043	-0.201	0.748	-0.224	-0.224	0.803	0.655
6.	0.594	-0.040	0.177	0.409	-0.080	0.538	0.303	-0.087	0.473	0.585
7.	-0.024	0.760	-0.142	0.040	0.769	-0.032	0.068	0.771	-0.066	0.598
8.	-0.047	0.857	-0.069	-0.021	0.861	0.014	-0.005	0.861	-0.006	0.742
9.	-0.102	0.672	0.053	-0.129	0.670	0.040	-0.128	0.667	0.052	0.465

^aReverse coded; KMO=0.812, Bartlett's Test of Sphericity ($p<0.05$); Extraction Method: Rotation Method: Oblimin with Kaiser Normalization; ^{a3} factors extracted, 10 iterations required,

^bRotation converged in 10 iterations.

satisfactory internal consistency at two-time points.

ICC values for all the 9 items tested for intra-rater test-retest reliability were good and exhibited coefficient values of >0.80 (Table 2).

Of the 108 respondents in the field study, 70 (64.8%) were aged 26-35 years, 66 (61.1%) were from urban localities, 32 (29.6%) were graduates and 91 (84.3%) were housewives (Table 3). The internal consistency using Cronbach's alpha statistics for the pooled 9 items acceptable reliability at $\alpha = 0.790$.

The loading values for all the nine constructs were acceptable (>0.40) (Table 4). As such, all items of the translated QOL-GRAV-U were retained proving the validity of the translated questionnaire.

Discussion

The current study was planned to translate and psychometrically validate the Urdu version of QOL-GRAV. The QOL-GRAV is a simple instrument with a straightforward scoring method. In the parent study, Vachkova et al. examined the properties of the QOL-GRAV tool and compared it with the generic WHOQOL-BREF.¹⁰ Even though the current study was aimed at psychometrically validate the QOL-GRAV-U and no comparison was made (as in the parent study), our respondents expressed the opinion during informal communication that they felt that the QOL-GRAV-U managed to extract their specific experiences during pregnancy. Therefore, we do agree that QOL-GRAV provides an opportunity to capture more sensitively and accurately the degree of specific experiences during pregnancy that is not possible by adopting a generic QOL tool.¹⁰

Additionally, the parent study targeted women in the first

trimester of a routine pregnancy. Consequently, the current study was also designed based on the inclusion criteria of the developers.¹⁰ The socio-demographics of both studies are almost comparable except planned pregnancies. This is understandable as planned pregnancies are least discussed in societies of developing countries. Furthermore, because of social and tribal restrictions, we were not in the position to ask this question from our respondents. However, we believe that the absence of this information had little effect on the validation results and we still managed to achieve our study objective.

Item analysis of the QOL-GRAV-U reported agreeable reliability and acceptable significant intra-rater consistency. As reported, the test and retest analysis exhibited acceptable Cronbach's alpha values [0.780 (Test) and 0.812 (Retest)]. Moreover, the ICC for all items tested for intra-rater reliability was also excellent (all items exhibited coefficients >0.80 and $p<0.05$). Hence, our assessment confirmed the repeatability of construct measurements between two time intervals (i.e. week 1 and 3). Our results are in line with what is reported by the developers of the original QOL-GRAV,¹⁰ hence confirming the reliability of the translated version of QOL-GRAV-U at two time points. Moreover, consistency analysis of the field test was also acceptable which further confirmed the reliability of the translated version.

The results of EFA supported the validity of QOL-GRAV-U. While conducting an EFA analysis, the sampling adequacy for each variable and the complete dataset is an important factor to be considered. As proposed in literature, KMO values between 0.8 and 1 are rated excellent and indicate the adequacy of the sampling. Furthermore, this also serves as an indication that EFA will be useful for the study variables.²⁶ The KMO value in the current study was 0.812 and this is because of positive zero-order correlations.

Additionally, with KMO value of <0.80 , no remedial action (deleting the offending variables or adding new variables related to the offenders) was needed.²⁷ Therefore, with KMO value of 0.812, our dataset was highly suitable for EFA and signified the success of factorial analyses.

Continuing with the validity analysis, principal axis factoring extraction, and oblique rotation method with Kaiser Normalization was applied. The selection was based on the values extracted by the Shapiro-Wilk test. As the observed values violated the assumption of normality principal axis factoring extraction and oblique rotation method with Kaiser normalisation for the EFA was advisable. With delta set at zero, we selected the direct oblimin based on the assumption that factors are correlated and an assessment can be drawn.¹⁸ Barlett's Test of Sphericity was also significant ($p<0.05$) which indicated that it was worth continuing with the EFA as there were relationships to investigate.

In terms of constructs retention, we used the extracted communalities as the bench. The literature reports loading values of > 0.30 as important and thus must be retained during the EFA.^{18,20} The extracted communalities for all items of QOL-GRAV-U ranged 0.4–0.7 and hence all items of the original QOL-GRAV were retained in the translated version. This further confirmed that the three extracted factors are appropriate to account for the validity of the survey instrument in the Urdu language. Moreover, all constructs identified during the EFA were similar to the original QOL-GRAV and other validated questionnaires for assessing QOL in case of physiological pregnancy.¹⁰ As the QOL-GRAV-U is proven to be a validated tool, we propose using this tool for the assessment of QOL instead of a generic measure in areas where the Urdu language is used as a medium of communication.

We agree with the developers of QOL-GRAV that it would be helpful to see how the questionnaire works with pregnant women of higher and lower age, of socioeconomic, cultural, and ethical influences, including minority groups, the socially disadvantaged and women who do not attend prenatal care. We recommend studies with fairly large sample size to explore the suggestions mentioned above.

Conclusion

Assessing QOL is imperative while offering or adapting preventive measures during pregnancy. This ensures an increase in the quality of care and well-being of the mother and the developing foetus. Being the only pregnancy-specific QOL tool, the QOL-GRAV is an important scale that permits healthcare and social researchers to take the initial step in determining QOL during normal pregnancy. QOL-

GRAV-U was found to be a valid instrument to assess QOL in regions where Urdu is a prime language of communication. We are also hopeful that the use of QOL-GRAV-U will help healthcare professionals to identify potential areas for improvement for expecting mothers that will affect the overall quality of care.

Disclaimer: The text is based on a PhD thesis.

Conflict of interest: A co-author also signed the institutional ethics review approval as Director of the ethics review committee.

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