ORIGINAL ARTICLE

TRANSLATION, CROSS-CULTURAL ADAPTATION AND VALIDATION OF POLYCYSTIC OVARIAN SYNDROME QUALITY OF LIFE SCALE IN PASHTO

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Background: Cross-cultural adaptation and validation are important for the reliable use of a scale. This study was conducted to translate and validate the polycystic ovarian syndrome quality of life scale (PCOSQOL) in Pashto. **Methods**: This study was conducted in tertiary care teaching hospitals of Peshawar from August to December 2021 on 333 patients diagnosed with polycystic ovarian syndrome. Using forward-backward method, three bilingual experts translated PCOSQOL from English to Pashto. The exploratory and confirmatory factor analyses, Cronbach alpha reliability and construct validity of PCOSQOL (Pashto version) was found out using SPSS version 25 and AMOS version 26 for data analysis. **Results**: The mean age of the sample was 25.73±5.89 years. Majority were married (n=260, 78.1%), uneducated (n=180, 54.1%) and unemployed (n=303, 91%). Factorial validity of the Pashto version showed it to be a five-factor model. Regarding construct validity, the factor loading through Item total correlation scores revealed highly satisfactory correlation coefficients. The Cronbach's alpha reliability of the Pashto version of PCOSQOL was 0.918. The confirmatory factor analysis (CFA) indicated a good fit model with a CFI of 0.91 and a RMSEA value of .08. Poor quality of life (89.98±28.5) was reported in 169 (50.8%) women and this was irrespective of their educational and occupational background (p>0.05) respectively. Pearson coefficient correlation test showed a significantly positive Inter-scale correlation (p<0.05). **Conclusion**: Pashto version of PCOSQOL is a reliable instrument to measure the quality of life in patients with polycystic ovarian syndrome and can be used in Pashto speaking patients.

Keywords: Polycystic Ovarian Syndrome; Quality of life scale (PCOSQOL); Validation; Pashto

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INTRODUCTION

Polycystic Ovarian Syndrome (PCOS) remains a gynaecologist's dilemma as it's still poorly understood, difficult to treat, and has a prevalence of 21.27%.[1] Irving Freiler Stein and Michael Leventhal were the first to recognize the presence of hirsutism, menstrual irregularity, mainly amenorrhoeic spells, and infertility and gave it the name, Stein Leventhal Syndrome, in 1935, which was later named polycystic ovarian syndrome.[2] Unfortunately, the syndrome is not limited to just these symptoms but other aspects like obesity, mood spells, depression, decreased self-esteem, feeling overwhelmed, and other psychological issues are included which hurt the quality of life of affected women all over the world.[3]

It was first thought to be a disease of the 20th century limited to the developed west but now it is very much an Asian and third world problem too.[4] In Pakistan, several cases of PCOS are seen in OPDs for amenorrhea, subfertility, hirsutism, and obesity. In this context, it must have been the PCOS physical and psychological manifestation that would have led to the development of the PCOS Quality of Life (PCOSQOL) questionnaire in 1998.[5] This is a 26-item questionnaire having five subscales covering emotion, body hair, infertility, weight, and menstrual problems. It remains the most popular tool for assessing the impact of PCOS on the Quality of Life of affected women.[6]

PCOSQOL has, since its inception, been translated and validated in many languages [7–14] and a need was felt to have it translated and validated in the Pashto language since Pashto is the main language spoken and understood by most of the population of Khyber Pakhtunkhwa province of Pakistan and neighbouring Afghanistan. Thus, the PCOSQOL questionnaire was translated and validated into Pashto for this study.

MATERIAL AND METHODS

This cross-sectional study was conducted on Pashto-speaking Pakistani women with polycystic ovarian syndrome visiting the outpatient department of obstetrics and gynaecology of teaching hospitals of Peshawar,

including Hayatabad Medical Complex, Khyber Teaching Hospital, Kuwait Teaching Hospital, Mercy Teaching Hospital, and Northwest Teaching Hospital and Research Centre from August to December 2021.

Institutional Review Board of Prime Foundation issued the ethical approval, after which 333 participants were included in this study. Participants with any physical/intellectual disability, suffering from severe mental illness or with substance use problems were excluded from the study. Using the forward-backwards method, three bilingual experts translated PCOSQOL from English to Pashto. Participants were assured of the anonymity and confidentiality of the responses before an interviewer, interviewed them on the Pashto version of the scale. Data analysis was performed by using SPSS version 25 and AMOS version 26. "Exploratory factor analysis (factor loadings of the Pashto version of PCOSQOL in the factor solution obtained through Varimax rotation) was used to find the factorial validity. Cronbach's alpha reliability was used to measure the internal consistency of the questionnaire and the value of alpha was considered satisfactory if it was equal to or greater than 0.7. To find the construct validity of the PCOSQOL Pashto version, item-total correlation, and Cronbach's alpha, if the item was deleted, were also computed. Confirmatory Factor Analysis was used to compare the fit of the factor structure of PCOSQOL using AMOS. The Comparative Fit Index, root mean square error of approximation, and Normed fit index was estimated to determine the model fit." The concurrent validity of PCOSQOL was assessed by correlating it with its subscales. The Chi-Square test was used to explore the relationship between PCOSQOL and participants' education and employment. Pearson coefficient correlation was applied to see the relationship between PCOSQOL with women's education, employment status, medical comorbidities, and their husband's education and employment status.

RESULTS

A total of 333 women were included in the study. The mean age of the sample was 25.73±5.89 years with the age range of 18–45 years. Most of the women were married (n=260, 78.1%) and out of these 147 (45.1%) never got pregnant. Majority were uneducated (n=180, 54.1%) and unemployed (n=303, 91%). The majority of the females didn't report any medical comorbidities (n=301, 90.4%). However, there were 14 (4.2%) cases of hypertension, 10 (3%) cases of Diabetes Mellitus, 4 (1.2%) cases of Morbid Obesity, and 1 (0.3%) each of Anemia, Depressive Illness, Hypothyroid, and thalassemia respectively. The details are given in table-1.

"Exploratory Factor analysis with Varimax rotation was employed. The criteria for taking factors were (a) a simple structure with distinctive factors having high loading of items on a single factor; (b) an Eigenvalue equal to or greater than 1; (c) a factor loading of minimum .30 and (d) meaningfulness of the factor about the underlying construct.[15,16] To check the assumption of the normal distribution of responses, Bartlett's Test of Sphericity was employed. [17] It was significant (p<0.001) which showed that the responses were distributed adequately to analyse a potential factor structure. In addition, Kaiser Meyer Olkin test for adequacy of sampling was applied."

According to the factorial validity of the scale, five factors explained 18.41% variance for the first factor, 15.02% for the second factor, 12.95% for the third factor, 10.62% for the fourth factor, and 8.27% for the fifth factor. In addition, Bartlett's test showed significant results indicating the items were inter-correlated and could be proceeded for factor analysis. No item was removed because all the items had a factor loading >0.3. Further details are shown in table-2.

For the Pashto version of PCOSQOL, the Cronbach Alpha Reliability was 0.918. To attain the construct validity of the acquired factor structure for translated Pashto version of PCOSQOL, item-total correlation and Cronbach's alpha, if item deleted, were also computed. The results show a correlation with the total score. For item-total correlation, values ranged from .22 to .71 (p<.01). These values show highly satisfactory correlation coefficients. The values of Cronbach's Alpha were reasonably high ranging from .913 to .919. High Cronbach's Alpha values suggest that the symptoms were consistently homogenous. The results are presented in Table-3. "The present study also used CFA to compare the fit of the factor structure of PCOSQOL using AMOS. The Comparative Fit Index (CFI; acceptable fit values >0.90), and root mean square error of approximation (RMSEA: acceptable value <0.08), GFI (Goodness of Fit index; acceptable fit value > .90), and NFI (normed fit index: acceptable fit values >0.70) were estimated to determine the model fit. We conducted CFA and the model indicated a good fit to the data." The results are presented in table 4 and figure-1. Poor quality of life (89.98±28.5) was reported in 169 (50.8%) women, and this was irrespective of their educational and occupational background (p>0.05) respectively**.** The details are given in Figures-2 and 3. Pearson coefficient correlation test was applied to see the Inter-scale correlation between PCOSQOL total score with emotions, body hair, weight, infertility problems, and menstrual problems. The results generally revealed a significant positive relationship (p<0.05). The details are given in table-5. Pearson coefficient correlation test was applied to see the relationship between quality of life with education, employment status, and medical comorbidities. The results generally revealed a non-significant relationship except for a significant negative relationship between employment status with education status (p<0.05). Further details are given in table-6.

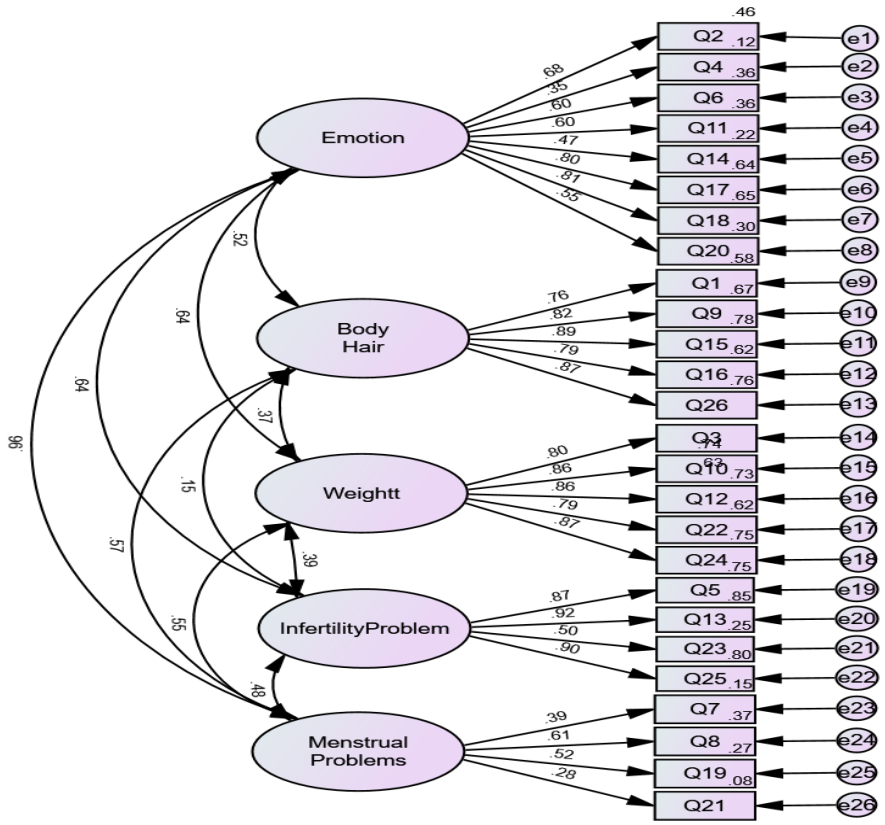

Figure-1: Model Emerged from Confirmatory Factor Analysis (based on total sample)

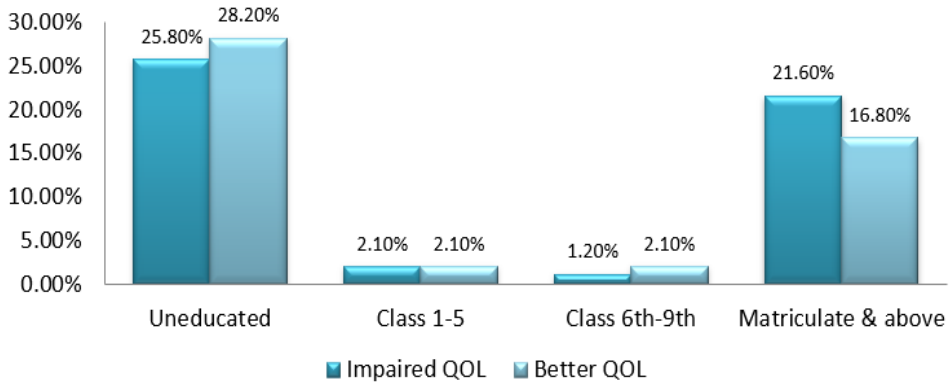

Figure-2: Association between levels of quality of life with education. (n=333)

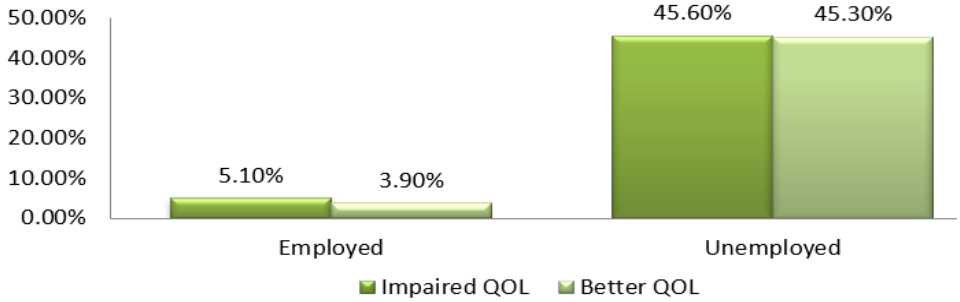

Figure-3: Association between levels of quality of life with employment status. (n=333)

Table-1: Basic demographic details (n=333)

Variables		N (%)
Education	Uneducated	180 (54.1%)
	Class 1-5th	14 (4.2%)
	Class 6th -9th	11 (3.3%)
	Matric and above	128 (38.4%)
Occupation	Employed	30 (9%)
	Unemployed	303 (91%)
Marital Status	Married	260 (78.1%)
	Unmarried	73 (21.9%)
Medical Comorbidities	Yes	32 (9.6%)
	No	301 (90.4%)

Table-2: Factor Loadings of the Pashto version of PCOSQOL in the factor solution obtained through Varimax rotation (n=333)

S. No	Items	Factor I	Factor II	Factor III	Factor IV	Factor V
1	په زنه باندے ده خکاره ویختو مسئله درته سومره ده		.819			
2	PCOS ده وجے درته سومره وخت خفګان کیګی				.442	
3	ده وزن زیاتید و باندے سومره وخت فکر منداے	.789				
4	سومره زر ستړے کیګے					.635
5	ماشومانونه کیدو ته سومره وخت فکر منداے			.904		
6	PCOS ده وجے موډ مو سومره زر بدلیګی					.516
7	سر خو ګیدو مسئله درته سومره ده					.745
8	جامے ګډوډ کیدو مسئله درته سومره ده				.763	
9	په بره شونډه ده خکاره ویختو مسئله درته سومره ده		.844			
10	سومره وخت درته وزن کمه ولو که مسئله شوے ده	.848				
11	سومره وخت نه PCOS ده وجے درته زان بدے خکاری	.672				
12	سومره وخت نه ده وزن کمه ولو ده وجے تنګ شوی اے	.848				
13	سومره وخت نه ستازړه کے یره ده چه پنځی به مے نه کیګی			.877		
14	سومره وخت نه درته دایره ده چه کینسر درته او نشی			.456		
15	په مخ باندے ده خکاره ویختو مسئله سومره ده		.869			
16	بدن باندے زیاتو ویختو ده وجے سومره شرمیګے		.779			
17	سومره وخت نه PCOS دا مرض په وجه فکر منده اے				.533	
18	سومره وخت نه PCOS په وجه موزان ته پام دے				.511	
19	خیټه پڅسید و مسئله سومره ده				.528	
20	جامے لیټ کیدو مسئله درته سومره ده				.820	
21	جامو سره ده ډز مسئله درته سومره ده					.598
22	سومره وخت درته ده وزن ده زیاتید و په وجه زان خه نه خکاری	.789				
23	سومره وخت درته دا محسوس کیګی چه PCOS په حالت مے قابو نشته	.437				
24	سومره وخت درته خپل مناسب وزن برقرار ساتلو کے مسئله کیګی	.864				
25	سومره وخت درته ماشومان نه کیدو مسئلے په وجه خفګان کیګی			.884		
26	په جسم باندے خکاره ویختو مسئله سومره ده		.845			
Eigen Values		4.788	3.906	3.367	2.762	2.152
Percentage of variance		18.414	15.023	12.952	10.625	8.277
Kaiser-Myer Olkin Measure of Sampling Adequacy		.906				
Bartlett's Test of Sphericity, Approximate Chi-Square		5281.513***				

Bold: greater values of factor loadings in every item (>0.3). ***p<.001

Table-3: Item total score correlation and Cronbach's alpha, if item deleted, for the Pashto translation of PCOSQOL (n=333)

Items	Correlation with a total score	Cronbach's alpha, if deleted
Item 1	.442***	.917
Item 2	.579***	.915
Item 3	.617***	.914
Item 4	.345***	.918
Item 5	.448***	.917
Item 6	.558***	.915
Item 7	.327***	.919
Item 8	.514***	.916
Item 9	.492***	.916
Item 10	.595***	.914
Item 11	.633***	.914
Item 12	.623***	.914
Item 13	.583***	.915
Item 14	.467***	.917
Item 15	.530***	.915
Item 16	.535***	.915
Item 17	.679***	.913
Item 18	.712***	.913
Item 19	.471***	.916
Item 20	.468***	.916
Item 21	.223***	.920
Item 22	.632***	.914
Item 23	.608***	.914
Item 24	.634***	.914
Item 25	.531***	.916
Item 26	.539***	.915

*** = $p<0.01$ level; ** = $p<0.05$ level.

Table-4: Indices of model fit from confirmatory factor analysis (n=333)

Measure	X^2	Df	GFI	CFI	NFI	RMSEA
PCOSQOL (Pashto)	910.566***	29	.83	.91	.83	.08

Table-5: Inter-scale correlation between PCOSQOL Total score with Emotions, Body hair, weight, infertility, and menstrual problems (n=333)

S. No	ITEMS	I	II	III	IV	V	VI
I	PCOSQOL	1					
II	Emotions	.906*** (.000)	1				
III	Body Hair	.644*** (.000)	.452*** (.000)	1			
IV	Weight	.763*** (.000)	.595*** (.000)	.353*** (.000)	1		
V	Infertility Problems	.693*** (.000)	.631*** (.000)	.171*** (.000)	.414*** (.000)	1	
VI	Menstrual Problems	.677*** (.000)	.655*** (.000)	.368*** (.000)	.352*** (.000)	.344*** (.000)	1

Table-6: Pearson correlation between education, employment status, and medical comorbidities with PCOSQOL (n=333)

S. No	ITEMS	I	II	III	IV
I	PCOSQOL	1			
II	Education	-.073 (.186)	1		
III	Employment status	.070 (.202)	-.339** (.000)	1	
IV	Medical Comorbidities	.002 (.972)	.012 (.830)	-.081 (.140)	1

DISCUSSION

Translating an existing scale into another language is not just a translation of the words used. It requires a lot of research to produce a document that is culturally acceptable and psychometrically equivalent. Due to rising cases of PCOS across the globe, the scale has been translated and validated in several languages.[7–14] However, this study is the first to describe the psychometric properties of PCOSQOL in the Pashto language. In general, our results are in line with the previous validation studies of the scale and therefore, the desired purpose was achieved of Pashto translation of PCOSQOL.

The mean age of our sample of patients with PCOS is similar to studies conducted in Chinese, Indian, Iranian, Korean, German, Sri Lankan and Swedish languages as well as with a study on the Endocrine correlates of PCOS.[8–12,14,18,19] However, a

meta-analysis found that the prevalence decreased significantly with age, suggesting that age may be related to PCOS.[20]

In our study majority of the women were married (78.1%) which is similar to the Sri Lankan (72.3%) [12] and German study (72.7%), while it is in contrast to Arabic (52.86%)[7] Spanish (51%)[13] and Indian study (41%)[19].

In our study, most of the patients were unemployed (91%) which is in contrast to the Sri Lankan (21%)[12] Spanish (21%)[13], and an Indian study (2%).[19] However, a study done by Wu *et al* found that there was a difference in the prevalence of PCOS among different occupations and that PCOOS had the highest prevalence among students (technically unemployed).[20]

The majority of our sample was uneducated or only educated to a level of primary school (58.3%), which is in contrast to the Iranian (22%)[10] Spanish (20.4%)[13] and an Indian study (11%)[19].

A systematic review conducted by Schmid *et al* revealed that the symptomatology of PCOS causes a major reduction in the quality of life of the affected women and it is the culture's typical gender identity and cultural traditions that influence the health-related quality of life of these women.[21] Our study reported that the majority of the women (50.8%) had a poor quality of life which is in line with the original English[6] Sri Lankan[12] Spanish[13] and the Swedish study.[14]

The Cronbach's alpha (0.918) in our study was higher than the original scale (0.7)[6] Sri Lankan (0.67)[12], and the Iranian version (0.84)[10] while lower than the Chinese (0.939) [8] Korean (0.93)[11] and German version (0.95)[9] respectively.

In the current study, the results of exploratory factor analysis showed five-factor solutions to be a better fit for the data and Eigenvalues of 4.788, 3.906, 3.367, 2.762, and 2.152 respectively. These results are in line with the findings of the original study, which used a four-factor model and had eigenvalues of 17.2%, 4.99%, 4.11%, and 2.24% respectively.[6] Similarly, our results showed an acceptable and good factor loading on each item with a total variance of 65.3%, which is in line with the findings of another study that explained a variance of 64% but it used a six-factor model.[10] Another study found a variance of 71.9%, generated from the six factors model.[8] The Keyser-Meyer-Olkin measure of sampling adequacy of our study (0.906) was similar to that of the original English study (0.906)[6] and greater than that of the Iranian version (0.78)[10].

In our study, the Comparative fit index in CFA and RMSEA was in line with the findings of another study conducted in Iran (0.91 and 0.070).[10]

Since PCOSQOL mainly focuses on the physical symptoms of PCOS, there is a need to develop a comprehensive PCOS Quality of life scale that is inclusive of bio-psycho-socio-spiritual aspects of an individual.[6]

Limitations:

The study of patients with PCOS from a few centres may limit the generalization of the findings to the entire population of the region. Further research may need to be conducted on a larger scale including in other parts of the province. Such studies would extend the generalizability of this scale.

CONCLUSION

We are confident that the Pashto version of PCOS-QOL is a reliable and valid instrument for evaluating Pashto-speaking women with PCOS from Pakistan, Afghanistan, and the Pashto-speaking community anywhere across the world. Also, translation and validation into other regional languages such as Urdu should be done.

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Funding Sources

None.

Conflict of Interest

None

Research Involving Human Participants / Ethical Approval:

All procedures (Translation and validation) performed in the current study involving given participants were in accordance with the ethical standards in line with the principles of the declaration of Helsinki. The study was approved by the institutional review board of Prime Foundation, Peshawar Medical College((PRIME/IRB/2021-281).

Informed Consent:

Verbal informed consent was taken from the participants.

AUTHORS' CONTRIBUTION

MSG helped in the data collection and the write-up of the study. RK planned the study, helped in the data collection and the write up of the manuscript. SW, SI and RK helped in the data collection and in the writeup of the study. MRS helped in the data analysis and final production of results. NNM helped in the data collection and the write-up of the study. MI supervised the whole process of the study from the conception to finalization and critically reviewed the manuscript. All the authors made significant intellectual contribution to the stud

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