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# DEVELOPMENT AND VALIDATION OF THE KAZAKH VERSION OF THE "PROLAPSE QUALITY OF LIFE" (P-QOL) QUESTIONNAIRE

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## Abstract

The study aimed to create a Kazakh-language version of the P-QoL questionnaire based on relevant international requirements to determine its psychometric properties.

**Materials and methods.** The Kazakh-language version of the P-QoL questionnaire was tested to determine its reliability, validity and sensitivity. A total of 126 respondents participated in the study, of which 66 respondents with various stages of genital prolapse (the main group) and 60 respondents made up the control (asymptomatic) group. Spearman's correlation analyzed the reliability of "test" and "retest". The internal consistency between the questions was assessed based on the results of the calculation of the Cronbach- $\alpha$  coefficient. The threshold value  $> 0.7$  is determined acceptable.

**Results.** The mean age was  $56 \pm 6.01$  years for the main group and  $33 \pm 4.87$  years for the control group. Cronbach's  $\alpha$ -coefficient exceeded 0.7 (range 0.77 – 0.97). The maximum significant correlations of reliability of "test" and "retest" ( $p < 0.001$ ) were established.

**Conclusion.** Assessment of QoL in patients with POP is an important part of a comprehensive analysis of the effectiveness of the treatment. The results obtained using the validated Kazakh P-QoL questionnaire will allow obtaining a reliable analysis of the data, which will make it possible to individualize the treatment program taking into account the characteristics of the population.

## "Prolapse Quality of Life" (P-QoL) сауалнамасының қазақша нұсқасын әзірлеу және валидациялау

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Түйінді сөздер:  
жамбас мүшелерінің пролапсы,  
өмір сапасы, валидация, P-QoL  
сауалнамасы

## Тұжырым

**Зерттеудің мақсаты:** халықаралық талаптарға сай "Prolapse Quality of Life" (P-QoL) сауалнамасының қазақша нұсқасының психометриялық жарамдылығы мен сенімділігін бағалау.

**Материалдар мен әдістері.** P-QoL сауалнамасының қазақ тіліндегі нұсқасы сенімділік, жарамдылық және сезімталдық бақылауынан өтті. Зерттеуге барлығы 126 респондент қатысты, оның ішінде жамбас ағзалары пролапсының түрлі дәрежесімен 66 респондент негізгі топты құрады және 60 респондент бақылау (асимптоматикалық) тобын құрады. Спирменнің корреляциясы бойынша "тест" және "ретест" сенімділігі талданды. Сұрақаралық ішкі үйлесімділік Кронбах- $\alpha$  коэффициенті нәтижелері бойынша бағаланды. Шекті мән  $> 0,7$  қолайлы болып саналады.

**Нәтижелері.** Негізгі топтағы қатысушылардың орта жасы  $56 \pm 6,01$  жасты және бақылау тобындағы қатысушылардың орта жасы  $33 \pm 4,87$  жасты құрады. Аталған барлық шкалалар бойынша Кронбахтың  $\alpha$ -коэффициенті 0,7-ден асты (диапазон 0,77 – 0,97). «Тест» және «ретест» сенімділік критеріі бойынша сауалнама максималды жоғары корреляция нәтижесін көрсетті ( $p < 0,001$ ).

**Қорытынды.** Жүргізілген емнің тиімділігін кешенді түрде бағалау мақсатында жамбас мүшелерінің пролапсы бар науқастардың өмір сүру сапасын анықтау маңызды. Қазақша P-QoL сауалнамасының көмегімен сенімді деректерге қол жеткізіп, емдеу бағдарламасын жергілікті популяцияның ерекшеліктеріне сай етуге мүмкіндік береді.

## Разработка и валидация казахоязычной версии опросника "Prolapse Quality of Life" (P-QoL)

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### Аннотация

**Цель исследования:** создание казахоязычной версии опросника P-QoL на основе соответствующих международных требований для определения его психометрических свойств.

**Материалы и методы.** Проведено тестирование казахоязычной версии опросника P-QoL для определения его надежности, валидности и чувствительности. В ходе исследования приняли участие всего 126 респондентов, из них 66 респондентов с различными стадиями генитального пролапса (основная группа) и 60 респондентов составили контрольную (бессимптомную) группу. Корреляция Спирмена проанализировала надежность «тест» и «ретест». О внутренней согласованности между вопросами судили на основании результатов вычисления коэффициента Кронбаха- $\alpha$ . Пороговое значение  $> 0,7$  определен приемлемым.

**Результаты.** Средний возраст составил  $56 \pm 6,01$  лет для основной группы и  $33 \pm 4,87$  года для контрольной группы. По всем шкалам  $\alpha$ -коэффициент Кронбаха превысил  $0,7$  (диапазон  $0,77 - 0,97$ ). Установлены максимально значимые корреляции надежности «тест» и «ретест» ( $p < 0,001$ ).

**Заключение.** Оценка КЖ у пациентов с ПТО является важной составляющей комплексного анализа эффективности проводимого лечения. Результаты, полученные с помощью валидированного опросника P-QoL позволят получить достоверный анализ данных, что даст возможность индивидуализировать программу лечения с учетом особенностей популяции.

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жизни, валидация, опросник P-QoL

### Introduction

The World Health Organization has recognized genital prolapse as a public health problem worldwide. The proportion of women with one or complex dysfunction of the pelvic floor is 6.3% at the age of 20–29, 31.6% at the age of 50–59, and 52.7% in women over 60 [1]. Symptoms associated with pelvic organ prolapse (POP) can have a significant impact on the quality of a woman's life [2]. Thus, there is growing interest in analyzing the impact between pelvic floor symptoms and health-related quality of life (HRQoL) [3 – 6]. Also, it is important to measure quality of life (QoL) outcomes between patients or groups after particular therapy to assess the efficacy of treatment [7]. Because improving patients' subjective cure after treatment of POP-associated symptoms is one of the essential responsibilities of therapy. Accordingly, urogynecologists must assess whether the expectations of women referring to surgery are realistic and provide good consultancy, including sexual consultancy. It is reported that women with symptomatic POP are experiencing various types of psychological burdens such as stress, anxiety and depression [8].

Previously, validated questionnaires in Russian were used among Kazakhstani women to assess their QoL. However, more than half of the women population (69.4%) are Kazakh native speakers [9]. In practice, most of the women were forced to refuse to take the survey due to language difficulties. The validated 'Prolapse Quality of Life' questionnaire

(P-QoL) is a multidimensional tool designed to assess the QoL of females with POP-associated symptoms [10]. Additionally, QoL parameters can be used in the postoperative period to gain insight into patients' subjective assessment of their surgical outcomes. P-QoL has been used across cultures and communities and has been translated into 16 languages [11 – 15]. Its usefulness has been confirmed in Chinese, Italian, Turkish and Japanese studies comparing the P-QoL questionnaire with other universal QoL measuring tools [16 – 19].

Translating into Kazakh was considered necessary for comparing data on Kazakh females' QoL research in Kazakhstan to other countries. As there is a recommendation to use questionnaires in assessing POP, we aimed to translate, develop and validate the P-QoL questionnaire in the Kazakh-speaking population.

### Materials and methods

#### Questionnaire: Prolapse Quality-of-Life (P-QoL) Tool

The P-QoL's 20 questions are subdivided into nine domains, including general health perceptions, prolapse impact, role limitations, physical limitations, social limitations, personal relationships, emotions, sleep/energy, and severity measures. A response range, a four-point scoring system for each item and a total score for each domain ranging between 0 and 100 for severity measurement of vaginal prolapse symptoms, were used according to the original English version [10]. A higher score indicates a more significant impairment in the QoL, but a lower score

indicates a better QoL.

*Translation and adaptation of P-QoL to Kazakh*

The Local Ethics Committee of the NpJSC "Astana Medical University" approved the study protocol (Protocol No. 6 of the ethics committee meeting dated 06/28/2022). The translation procedure of the English version of P-QoL to Kazakh followed the stages of "Translation and Cultural Adaptation of Patient Reported Outcomes Measures—Principles of Good Practice":

Stage 1: Direct translation of the questionnaire from the original language. The person performing the translation met the following requirements: having higher medical education, not previously familiar with this questionnaire, and being a native of Kazakh.

Stage 2: based on a direct translation by a group of gynecologists, all discrepancies were eliminated using the alternative translation method.

Stage 3: The preliminary version has undergone a reverse translation at this stage. The person performing the translation met the following requirements: having higher medical education, had not previously been involved in the process of translating this questionnaire, fluent in English and Kazakh.

Stage 4: Independent evaluation, as well as spelling and grammatical editing, were carried out as part of independent experts. Thus, a test version of the questionnaire was obtained.

Stage 5: the equivalence of points and answer options in translation from the original was checked. 15 respondents took part in the testing. They were asked to take the survey at the first visit, and then repeat it two weeks later. All the subjects were native speakers of the Kazakh language.

After assessing the cognitive interview results, the final Kazakh version was ready for statistical validation.

*Patients and enrollment*

This was a cross-sectional study conducted between July 2022 and October 2022 in several outpatient clinics' gynecological departments and the gynecology department of Multidisciplinary Regional Hospital No. 2, Astana, Kazakhstan. All participants who completed the survey participated in this study voluntarily and anonymously. All women completed

the questionnaire before their hospital or practice visit to assess the degree to which the POP-associated symptoms affected them and how this impacted their QoL. Symptomatic patients presented with POP-associated symptoms. Women in the asymptomatic group presented with various non-prolapse conditions, including routine check-ups, pelvic pain, heavy periods, endometriosis, amenorrhea or need for contraception. Afterwards, the women were examined in the dorsal position using the POP-Quantification System (POP-Q) as a validated and reliable method to classify a POP degree [22]. This study had the following inclusion criteria: (1) Women aged >18; (2) Knowledge of the Kazakh language in speech and writing. Exclusion criteria: (1) Being pregnant, within six months postpartum or post-surgery; (2) Confirmed mental disorders.

*Statistical processing*

Spearman's correlation analyzed test-retest reliability. Internal consistency, defined as the correlation between items in each domain, was analyzed using Cronbach's alpha. A value of > 0.7 is considered acceptable. The validity of the Kazakh version of the P-QoL was assessed by comparing the scores from each P-QoL domain between symptomatic and asymptomatic patients using the Mann-Whitney U test. Spearman's correlation was used to determine the correlation between the gynecological examination findings (POP-Q stage) and the P-QoL score. Chi-square was used to compare categorical data. The Mann-Whitney U test was used to compare all median values, including the measurement values of POP-Q between symptomatic and asymptomatic patients.  $p < 0.05$  was considered statistically significant. For continuous numbers, we used a descriptive analysis with an estimation of the mean (Me) and standard deviation (SD), as well as absolute numbers (n) and percentages (%) for qualitative variables. Questionnaire results data were entered into SPSS version 26.0 for aggregation and statistical analysis.

**Results**

A total of 126 women were included in this study with 66 of them being symptomatic and 60 asymptomatic. Symptomatic women appeared to be older than asymptomatic patients (Table 1).

Table 1.  
 Basic characteristics and vaginal examination findings of symptomatic and asymptomatic groups

	<b>Symptomatic (n = 66)</b>	<b>Asymptomatic (n = 60)</b>
Age (Median) (range)	56 (29 – 68)	33 (18 – 50)
Parity (median) (range)	2 (1–5)	1 (0–3)
Hormonal status (%)		
Premenopausal	68.2%	85%
Postmenopausal	31.8%	15%
BMI (median) (range)	29.02 (23.88 – 36.4)	27.9 (24 – 40.3)
POP-Q stage (median) (range)	3 (1–4)	1 (0–1)
POP-Q stage (%)		
0	0%	75%
1	4.5%	25%
2	32.5%	0%
3	45%	0%
4	18%	0%

BMI – Body mass index; POP-Q – Pelvic Organ Prolapse Quantification System

The median age was 56 years (range 29–68) for symptomatic and 33 years (range 18–50) for asymptomatic patients. The participants' body mass index was nearly equal in both groups. Forty-five (75%) of 60 asymptomatic patients were classified as POP-Q grade 0; 15 (25%) of 60 were graded as POP-Q grade I, none had a prolapse staged as POP-Q II, III or IV. Among the symptomatic group, three (4.5%)

of 66 women were classified as POP-Q grade I, 21 (32.5%) patients were graded as POP-Q grade II, 30 (45%) patients were graded as POP-Q grade III, and 12 (18%) patients had a prolapse graded as POP-Q IV. The majority of items were easily understood. All items achieved a Cronbach- $\alpha$  coefficient greater than 0.77, confirming a highly acceptable internal consistency (Table 2).

Variable	Cronbach's alpha
General health perceptions	0.95
Prolapse impact	0.96
Role limitations	0.77
Physical limitations	0.95
Social limitations	0.95
Personal relationships	0.80
Emotions	0.97
Sleep/energy	0.79
Severity measures	0.89

Table 2.  
Cronbach's alpha statistic for variables of the Kazakh version of the P-QoL questionnaire

*P-QoL – Prolapse Quality of Life* questionnaire  
 The test-retest reliability confirmed a highly significant correlation between the total scores for

each common domain of the questionnaires ( $p < 0.001$ ). Spearman's rank correlation analysis is shown in Table 3.

	P-QoL domains scores	
	SCC	p
General health perceptions	1.00	<0.001
Prolapse impact	0.85	<0.001
Role limitations	0.72	<0.001
Physical limitations	0.85	<0.001
Social limitations	1.00	<0.001
Personal relationships	1.00	<0.001
Emotions	0.87	<0.001
Sleep/energy	0.75	<0.001
Severity measures	0.82	<0.001

Table 3.  
Test-retest reliability scores for the P-QoL

*SCC - Spearman's rank correlation*  
 Correlation analysis showed the maximum significance between the domains "Prolapse impact", "Role limitations", "Physical limitations", "Severity measures" and the data of gynecological examination

by POP-Q in the symptomatic group ( $p < 0.001$ ), which confirms the strong relationship between the symptoms of prolapse affecting QoL and objective data (Table 4).

	P-QoL domains scores	
	SCC	p
General health perceptions	0.35	0.32
Prolapse impact	0.57	<0.001
Role limitations	0.59	<0.001
Physical limitations	0.56	<0.001
Social limitations	0.40	0.06
Personal relationships	0.42	0.41
Emotions	0.44	0.27
Sleep/energy	0.28	0.12
Severity measures	0.51	<0.001

Table 4.  
Spearman's rank correlation between the P-QoL domain's scores and vaginal examination findings (symptomatic group)

Finally, the total scores for each P-QoL domain were significantly different between

symptomatic and asymptomatic groups (Table 5,  $p < 0.001$ , Mann-Whitney U-test).

Table 5.  
 Correlation of P-QoL domain's  
 scores between symptomatic and  
 asymptomatic groups

	P-QoL domains scores (median (IQR))	
	Symptomatic	Asymptomatic
General health perceptions	45 (25-60)	25 (0-31)
Prolapse impact	100 (77-100)	0 (0-25)
Role limitations	70 (27-87)	0 (0-0)
Physical limitations	70 (27-87)	0 (0-17)
Social limitations	33 (17-42)	11 (0-17)
Personal relationships	43 (33-69)	0 (0-0)
Emotions	11 (2-39)	0 (0-8)
Sleep/energy	25 (13-35)	12 (4-33)
Severity measures	65 (17-77)	0 (0-33)

In brackets are shown the interquartile ranges (IQR)

### Discussion

According to ICS and IUGA recommendations, the management of women with POP should rely on symptom severity and their impact on the QoL rather than the degree of prolapse [23]. Also, the symptomatic assessment by the doctor may be difficult or inaccurate due to the women's embarrassment during a consultation. Thus, in recent years, QoL questionnaires have been increasing worldwide. P-QoL is a validated QoL instrument measuring the severity and impact of urogenital prolapse on the QoL of women. To allow its utilization in different countries, translation and validation of the translated version are needed.

This is the first study that provides the results of validating the QoL assessment tool P-QoL in the Republic of Kazakhstan. The stages of development and validation met international requirements for linguistic ratification and validation of instruments. In our research, Cronbach's alpha was more than 0.7 and revealed good internal reliability of Kazakhstan's questionnaire, and there was no need to exclude questions.

The study reveals that the Kazakh version of the P-QoL correlates well with the POP-Q findings among Kazakh women. We confirmed that most symptomatic patients had POP-Q stage 2 or more. In contrast, asymptomatic patients had no more than stage 2. Furthermore, the total and domain scores were significantly higher in symptomatic women compared to asymptomatic participants.

It should be recommended for routine use in clinics. Future research to identify various factors related to the QoL among women with POP-associated symptoms using a similar approach will help develop a thorough approach to clinical practice and social support from the state.

### Conclusions

The Kazakh version of the P-QoL questionnaire is a valid and reliable instrument to assess the symptoms' severity and the impact of quality of life on POP in Kazakh-speaking patients. It may be easily administered and self-completed by the women. The P-QoL questionnaire can be used in practical healthcare in Kazakhstan.

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