Cross-Cultural Validity and Reliability Testing of the Quality Prenatal Care Questionnaire in Iran

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ABSTRACT

Aims The quality of antenatal care is recognized as critical to the effectiveness of care in optimizing maternal and child health outcomes. Utilization indices exist to measure the quantity of prenatal care, but currently, there is no accessed instrument to assess the quality of prenatal care in Iran. The purpose of this study was to examine the cross-cultural adaptation of quality of prenatal care using the 46-item Quality Prenatal Care Questionnaire in low-risk pregnant women.

Materials & Methods This cross-sectional and psychometric study was performed from June 2018 to January 2019. Two hundred thirty women were referred to community-based practitioners, antenatal hospital clinics, public system, and Private care options. The Quality Prenatal Care Questionnaire was used, and all the data were statistically analyzed using SPSS 22 and LISREL 8.80. The Chi-square test, Cronbach's alpha coefficient, KMO index, and Bartlett's test of sphericity, as well as EFA and CFA, were applied for statistical analysis.

Findings Cronbach's alpha for all items was 0.90, and ICC was 0.93. Explanatory factor analysis demonstrated the adequacy of the sampling (Kaiser-Meyer-Olkin=0.80) and significant factorable sphericity (p<0.001). CFA also confirmed the values of fit indices (RMSEA=0.07, CFI>0.92, x 2/df=2.25).

Conclusion The Quality Prenatal Care Questionnaire is a valid and reliable instrument for measuring antenatal care quality. The Quality Prenatal Care Questionnaire will be useful in future research as an outcome measure to compare the quality of care across geographic regions, populations, and service delivery, models.

Keywords Prenatal Care; Psychometric Testing; Quality of Healthcare; Reliability; Validity

CITATION LINKS

[1] Healthcare quality: A concept ... [2] Crossing the quality chasm: A new health system ... [3] "Evaluating the quality of medical care": Donabedian's ... [4] Donabedian's lasting framework for health ... [5] Defining quality of ... [6] Midwifery and quality care: Findings from ... [7] Women's and care providers' perspectives of ... [8] Women's narratives on quality in prenatal care ... [9] Extent of documented adherence to recommended prenatal ... [10] Development and testing of the patient expectations and ... [11] A randomized trial of augmented prenatal care ... [12] Evaluation of the'healthy start to pregnancy' early ... [13] Systematic review of the measurement properties ... [14] Consumer assessment of the quality of interpersonal ... [15] quality of prenatal care questionnaire: Instrument ... [16] Recommendations for the cross-cultural adaptation of health ... [17] Scale development: Theory and ... [18] Sample size calculations for population size estimation ... [19] Munro's statistical methods for health care ... [20] Principles and practice of structural equation ... [21] Structural equation modeling with lisrel, prelis ... [22] Psychometric properties in instruments evaluation ... [23] A guideline of selecting and reporting intraclass ... [24] quality of prenatal care questionnaire ... [25] Development of a measure of the patient-provider relationship ... [26] The development and application of a new tool ... [27] The seventh element of quality: The doctor-patient ... [28] Asking different questions: Research priorities to ... [29] Introduction to Birth's special issue ...

Introduction

In recent statements on health care systems and patient outcomes, quality of care has received a lot of attention [1]. Health care quality is described as the degree to which health services increase the likelihood of desired health outcomes for individuals and populations and are compatible with current professional knowledge [1, 2].

Donabedian was one of the first to focus on consistency, formulating the concept to include a context based on three key characteristics for its definition: structure, method, and result. "Structure" refers to the characteristics of the settings in which health care takes place (material, human and financial capital, and organizational structure); "process" refers to what is achieved in delivering and receiving care; and "outcome" refers to the impact of care on patients and communities' health status (morbidity and mortality levels) [3, 4]. Campbell *et al*. [5] adapted the Donabeidan [3, 4] model and suggested two main dimensions of quality of care, access, and effectiveness; access is defined as geographic or physical, affordability and usability, while clinical or technological efficacy and interpersonal interaction efficacy are included in efficacy. The results were considered a consequence of care rather than a component of care [5].

In Donabedian's model, the consistency literature in antenatal care describes both the structural and process aspects. Access to services, including availability, regional access, ease of scheduling appointments, hours of service delivery, telephone availability of care providers to answer pressing questions or concerns, and access to educational materials, is a widely known structural aspect [6, 7]. Processes of clinical care that have been described as components of quality prenatal care include assessment, screening, and monitoring; sharing of knowledge, promotion of wellbeing, training, and counseling; care for mothers, shared decision-making, and self-care; consistency of care; normalization of pregnancy and promotion of normal processes; and compliance to evidence-based clinical practice. Processes of interpersonal care that contribute to prenatal quality include careful listening and understanding, respect; sufficient time with the care provider; transparent interpersonal style; emotional support; and cultural awareness and competence. [6-8].

Quality is defined as a judgment or evaluation of several dimensions specific to the service being delivered, whereas satisfaction is an affective or emotional response to a specific consumer experience [1, 2]. Satisfaction measures tend to include components that are considered elements of quality, such as the structure of service delivery (wait time, continuity of care, physical environment) and process of care (advice received, explanations given by care provider, technical quality of care) [9, 10]. Assessment of prenatal care has primarily concentrated on women's satisfaction, but often without specific distinction between the constructs of satisfaction and quality of care. Analysis to empirically evaluate the relationships between these variables provides evidence that perceived quality affects satisfaction with health care and that quality of care and patient satisfaction is distinct constructs [9].

Few studies have explicitly examined relationships between quality of antenatal care and outcomes for women and infants [11, 12]. However, available evidence suggests that providing women with quality antenatal care is important in mitigating poor outcomes. In a randomized controlled trial (RCT), Klerman *et al.* [11] assessed the impact of quality antenatal care, defined as additional visits with psychosocial support, on maternal (smoking cessation, weight gain, perceived mastery) and infant (gestational age, birth weight) outcomes. Although preterm birth, self-reported smoking cessation, and cesarean birth rates were improved in the care group with additional visits, small numbers of women and infants having these adverse outcomes precluded the detection of statistically significant differences. In an RCT of an early antenatal health promotion workshop designed to supplement usual care, workshop attendance resulted in significant improvements in health behaviors, including diet and physical activity [12]. In contrast, Handler *et al.* [9] reported that lower adherence to recommended antenatal care content was significantly associated with low birth weight and preterm birth among women receiving antenatal care at physicians' offices.

As "the rigorous scientific evidence of its (antenatal care) effects on health outcomes, health-related behaviors, health care utilization, and health care costs is meager and insufficient". Although published studies suggest the importance of antenatal care quality, research in this area has been hindered by the lack of a robust instrument that comprehensively measures the quality of antenatal care [13]. Various questionnaires have been developed and validated so far in the field of prenatal care like Patient Expectations and Satisfaction with Prenatal Care instrument (PESPC) [10] and Prenatal Interpersonal Processes of Care (PIPC) [14]. The PESPC is a 41-item self-administered questionnaire designed to measure pregnant women's expectations and satisfaction with the prenatal care they anticipated and received. The PESPC is structurally valid, and the satisfaction subscale demonstrates an acceptable level of internal consistency (Cronbach's alpha of 0.94) [10]. Although there is no other instrument that measures quality prenatal care in all its dimensions, one instrument has been developed to measure the quality of interpersonal processes of prenatal care,

known as the Prenatal Interpersonal Processes of Care (PIPC) [14]. The PIPC has seven subscales and 30 items that reflect three underlying dimensions: Communication, Patient-Centred Decision Making, and Interpersonal Style. The majority of the seven subscales have acceptable internal consistency reliability (ranging from 0.66 to 0.85), and preliminary evidence of construct validity has been established [14].

The Quality Prenatal Care Questionnaire (QPCQ) was developed, considering effective prenatal care practices, the diversity of the Canadian population, and variations in the way prenatal care is delivered, and with input from both consumers and providers of care [15]. The universality of antenatal care in developed and developing countries and no instrument measures quality prenatal care in Iran. Cross-cultural validation refers to whether measures (in most cases psychological constructs) originally generated in a single culture are applicable, meaningful, and thus equivalent in another culture [16]. It has been mainly applied in psychological studies that need to adapt self-reported health status measures for languages other than the source language.

Most published measures of health status have been originally developed for and validated in English-speaking populations. With the increased number of multinational and multicultural studies, the need to adopt these measures for use in other languages has become more widespread. However, it is challenging to adapt an instrument in a culturally relevant and comprehensible form while maintaining the meaning of the original items. In response to the importance of Cross-cultural validity, this research assessed the Quality of Prenatal Care Questionnaire in the Iranian version.

Material and Methods

This cross-sectional and psychometric study was performed from June 2018 to January 2019. women referred to community-based practitioners, hospital antenatal clinic, public system, and private care options (e.g., an obstetrician, general practitioner, or independent midwife as the care provider). Based on a standard sample size which is 5-10 samples per item [17] participated. Due to the possibility of decreasing samples [18], the final sample size was 230. Women were eligible to participate if they had given birth to a single live infant, had at least three antenatal visits during the pregnancy, and could speak, read and write Persian. Women who had an intellectual disability or mental illness that precluded giving informed consent and women who had experienced a seriously ill infant or prenatal death were excluded.

The QPCQ was used, and it is a 46-item instrument developed by Team McMaster Hamilton, Canada, in 2008 [15]. It consists of 6 sub-scales, namely:

Information sharing (9 items), Anticipatory guidance (11 items), Sufficient time (5 items), Approachability (4 items), Availability (5 items), support, and Respect (8 items) [15]. It entails 46 items measured by a 5-point Likert scale indicating 5 for "strongly agree", 4 for "agree", 3 for "neither agree nor disagree", 2 for "disagree", and 1 for "strongly disagree". It should be noted that all the items were not positively encoded. The items 8, 15, 23, 28 and 40 were reverse scored (1=5, 2=4, 3=3, 4=2, and 5=1). The minimum and maximum scores of 46 items for quality of prenatal care are 46 and 230, respectively. The first step was a forward translation of the QPCQ. Initially, the agreement was obtained for using the original version of the questionnaire from the Original author, Heaman *et al.* [15]. The original Canadian version was translated into Persian and Several other languages such as Turkish, English, and Australian by the McMaster Hamilton Research Team, Heaman *et al.* [15], and according to the communication with the research team, Heaman *et al.*; there was no change in Iranian version. It was no longer necessary to perform the first stage, that was, to translate into the Persian version. The face validity of this instrument was investigated both quantitatively and qualitatively. Face validity assessments were performed by asking ten experts in midwifery and reproductive health to evaluate the questionnaire. The questionnaire was delivered to 30 women who were eligible to comment on the questionnaire in terms of appropriateness and relevance, ambiguity or possible misinterpretation of the phrases, and difficulty of its phrases and words. In the quantitative step, efforts were made to merge or eliminate similar phrases and determine the importance of individual phrases as an impact factor based on a 5-point Likert scale. The items with an impact factor exceeding 1.5 were found appropriate and kept for further analyses [19]. Additionally, content validity was confirmed based on expert comments (ten experts) and quantified based on the Content Validity Ratio (CVR) and the Content Validity Index (CVI). CVRs of over 0.62 and CVIs of over 0.79 were considered valid [19].

This article was approved by the Student Research Committee, Shahid Beheshti University of Medical Sciences. The informed written consent was obtained from all participants after the description of the study goals and methodology. The participating women were also assured of their right to withdraw from the study at their discretion.

Factor analysis was used to measure and determine the construct validity. The Exploratory Factor Analysis (EFA) using principal axis factoring with varimax rotation was performed to determine the factor structure of the questionnaire in 230 women. The Kaiser-Meyer-Olkin (KMO) test for sampling adequacy and Bartlett's test of sphericity were

used [20]. The factor loading of 0.3 and higher were considered acceptable [20]. Then to confirm the factor structure obtained from the EFA. The Confirmatory Factor Analysis (CFA) was performed on 230 women. The fitness indexes were used to evaluate the model fitness. To confirm the model fitness, the following thresholds were considered: Root Mean Square Error of Approximation (RMSEA)<0.08, Standardized Root Mean Square Error of Approximation (SRMSEA)<0.08, Comparative Fit Index (CFI) ≥ 0.90, Normed chi-square x^2/df<5.0 [20, 21]. The reliability was determined using the internal consistency test (Cronbach's alpha coefficient) and test-retest reliability [22]. A Cronbach's alpha of at least 0.70 was considered acceptable. The most acceptable test to determine stability is the intra-class correlation coefficient. Thus, test-retest reliability was measured using ICC, two-way mixed from a single measure [23]. To assess the reliability of the adapted version of the questionnaire in terms of stability, a sub-sample of 25 eligible women completed the questionnaire twice at a two-week interval. This formula was used for calculating ICC:

$$\frac{MSR-MSE}{MSR+(k-1)MSE+\frac{k}{n}(MSC-MSE)}$$ [23] Moreover, an ICC of 0.6

or above was acceptable. All the data were statistically analyzed using SPSS 22 and LISREL 8.80. The Chi-square test, Cronbach's alpha coefficient, KMO index, and Bartlett's test of sphericity, as well as EFA and CFA, were applied for statistical analysis.

Findings

The maternal age of 230 participants was 20-30, less than 20, and more than 30 years (63.5%, 23%, and 13.5%, respectively). Moreover, 86.1% of the individuals had high school education and lower, while 13.9% had academic education. Also, 55.7% had vaginal birth, 10,4%, 14.8% and 19.1% had Caesarean section (CS) planning, CS un-planning and repeat CS respectively. Among the participants, 77.8%, 3.9%, and 18.3% had incomes enough, less than enough, and more than enough for the living expenses. The mean±SD score of the questionnaire was 174.99±17.25.

No changed in items based on expert comments in the face validity evaluation. Thirty primiparous women also identified all the items of the questionnaires as transparent and easily comprehensible. The impact score ranged from 3.0 to 4.0 for each item. In the current study, according to the comments of 10 experts, the impact factors of the items were obtained. The estimated CVI and CVR values were between 0.83–1.00 and 0.80–1.00, respectively. All the items were therefore kept in the questionnaire.

According to the EFA, the KMO test was 0.80 for sampling adequacy, which was in the desired level, and Bartlett's test was statistically significant (p≤0.001).

The results of factor analysis demonstrated that principal axis factoring consisted of six factors. The six extracted factors included 58.19% of the variance of the 46 items in the study. A survey of the Scar diagram and the total table of variance were explained that there was a large primary factor (Support and respect) that had a special value of 9.9 and accounts for 19.77% of the total variance. After this factor, information sharing, anticipatory guidance, sufficient time, availability, and approachability were factors. The first factor, called information sharing-related factors, involved questions (3, 6, 11, 17, 22, 33, 39, 43, and 45) with about 11.43% variance. The second factor, named anticipatory guidance, covered questions (2, 4, 10, 13, 16, 20, 24, 27, 31, 42, 46) and with a variance of 8.82%. The third factor, known as sufficient time, entailed questions (1, 8, 18, 30, and 44) with a 7.84% variance. The Fourth factor, called approachability-related factors, involved questions (15, 23, 28, and 40) with about 3.98% variance. The Fifth factor, called availability, included questions (9, 12, 32, 35, 38) and having a variance of 6.36%. The Sixth factor known as support and respect entailed questions (5, 17, 14, 19, 21, 25, 26, 29, 34, 36, 37, 41) and with 19.77% the variance (Table 1).

The CFA was completed with 230 samples. All factor loads were appropriated. The smallest load factor belonged to question 40 with 0.321, and the largest factor load belonged to question 22 with 0.878. Total 46-items were reported with desirable fitness indices. Results of six factors were reported with desirable fitness indices (Table 1). CFI, RMSEA, x^2/df indicated the acceptability of fitness or optimal fit of this scale.

The CFA results using fitness indicators revealed that the research data fit the factor structure and the theoretical basis. The latter finding was indicated the alignment of the questions with the desired dimensions and confirmed the six-factor structure of the Iranian QPCE. CFA was used to fit the 6-factor model of the quality of prenatal care during pregnancy. Root fitness variance (RMSEA), comparative fitness index (CFI), softened fit index (NFI), Goodness Fitness Index (GFI), and Adjusted Fitness Index (AGFI) was used to measure the fitness of the model. For various fitness indicators, several sections were proposed by experts. The fitness indicators of the final form of QPCQ were evaluated. Findings indicated the desired fit of the data model. In this model, x^2=2017. 73, df=896, and therefore the ratio was x^2/df=2.25.

CFA results showed that all of the load factors were appropriate and significant in the initial model, but the model did not have suitable fit indices (Figure 1). Therefore, based on the corrective suggestions of the LISREL software for modifying the model between some items, the covariance path was established to the final model with fit indicated that

it was desirable.
The basic and modified models were shown in Table 2. The internal consistency of the questionnaire was first calculated by Cronbach's alpha for the whole tool and then for the subscales. The results of the reliability test were demonstrated in Table 3. Cronbach's alpha was estimated at 0.90 for the total tool. Also, the overall ICC of the QPCQ was 0.93, indicating that reliability for test-retesting was excellent (Table 3).

Table 1) Results of rotated factor loading analysis (n=230)

| Items	Factors					
	F1	F2	F3	F4	F5	F6
7: My prenatal care provider(s) respected my knowledge and experience	-	-	-	-	-	0.845
5: My prenatal care provider(s) respected me	-	-	-	-	-	0.842
14: My decisions were respected by my prenatal care provider(s)	-	-	-	-	-	0.840
41: My values and beliefs were respected by my prenatal care provider(s)	-	-	-	-	-	0.829
19: My prenatal care provider(s) was patient	-	-	-	-	-	0.810
21: I was supported by my prenatal care provider(s) in doing what I felt was right for me	-	-	-	-	-	0.788
26: My prenatal care provider(s) paid close attention when I was speaking	-	-	-	-	-	0.782
25: My prenatal care provider(s) supported me	-	-	-	-	-	0.780
36: My prenatal care provider(s) supported my decisions	-	-	-	-	-	0.732
34: I was in control of the decisions being made about my prenatal care	-	-	-	-	-	0.693
29: My concerns were taken seriously	-	-	-	-	-	0.690
37: I was at ease with my prenatal care provider(s)	-	-	-	-	-	0.639
22: The results of the tests were explained to me in a way I could understand	0.878	-	-	-	-	-
11: Everyone involved in my prenatal care received important information about me	0.799	-	-	-	-	-
39: My prenatal care provider(s) gave me enough information to make decisions for myself	0.737	-	-	-	-	-
33: My prenatal care provider(s) gave straightforward answers to my questions	0.727	-	-	-	-	-
45: I fully understood the reasons for blood work and other tests my prenatal care provider(s) ordered for me	0.721	-	-	-	-	-
17: I was screened adequately for potential problems with my pregnancy	0.621	-	-	-	-	-
3: I was given adequate information about prenatal tests and procedures	0.918	-	-	-	-	-
6: I was always given honest answers to my questions	0.600	-	-	-	-	-
43: My prenatal care provider(s) kept my information confidential	0.568	-	-	-	-	-
42: I was given adequate information about depression in pregnancy	-	0.685	-	-	-	-
31: I received adequate information about alcohol use during pregnancy	-	0.680	-	-	-	-
24: My prenatal care provider(s) was interested in how my pregnancy was affecting my life	-	0.597	-	-	-	-
13: My prenatal care provider(s) spent time talking with me about my expectations for labor and delivery	-	0.596	-	-	-	-
16: I was given enough information about the safety of moderate exercise during pregnancy	-	0.595	-	-	-	-
27: I was linked to programs in the community that were helpful to me	-	0.592	-	-	-	-
20: I received adequate information about my diet during pregnancy	-	0.585	-	-	-	-
46: My prenatal care provider(s) took time to ask about things that were important to me	-	0.581	-	-	-	-
2: My prenatal care provider(s) gave me options for my birth experience	-	0.580	-	-	-	-
4: I was given enough information to meet my needs about breastfeeding	-	0.575	-	-	-	-
10: My prenatal care provider(s) prepared me for my birth experience	-	0.448	-	-	-	-
44: My prenatal care provider(s) took time to listen	-	-	0.820	-	-	-
8: My prenatal care provider(s) was rushed	-	-	0.793	-	-	-
18: My prenatal care provider(s) always had time to answer my questions	-	-	0.784	-	-	-
1: I had as much time with my prenatal care provider(s) as I needed	-	-	0.704	-	-	-
30: My prenatal care provider(s) made time for me to talk	-	-	0.570	-	-	-
35: I could always reach someone in the office/clinic if I needed something	-	-	-	0.819	-	-
32: My prenatal care provider(s) was available when I had questions or concerns	-	-	-	0.756	-	-
38: I could reach my prenatal care provider(s) by phone when necessary	-	-	-	0.728	-	-
9: I knew how to get in touch with my prenatal care provider(s)	-	-	-	0.699	-	-
12: Someone in my prenatal care provider(s) 's office always returned my calls	-	-	-	0.591	-	-
28: My prenatal care provider(s) made me feel like I was wasting their time	-	-	-	-	0.780	-
15: My prenatal care provider(s) was abrupt with me	-	-	-	-	0.709	-
23: I was rushed during my prenatal care visits	-	-	-	-	0.484	-
40: I was afraid to ask my prenatal care provider(s) questions	-	-	-	-	0.321	-
Eigenvalue	11.93	4.13	3.40	3.05	2.47	1.78
Variance (%)	19.76	11.43	8.82	8.83	6.36	3.97
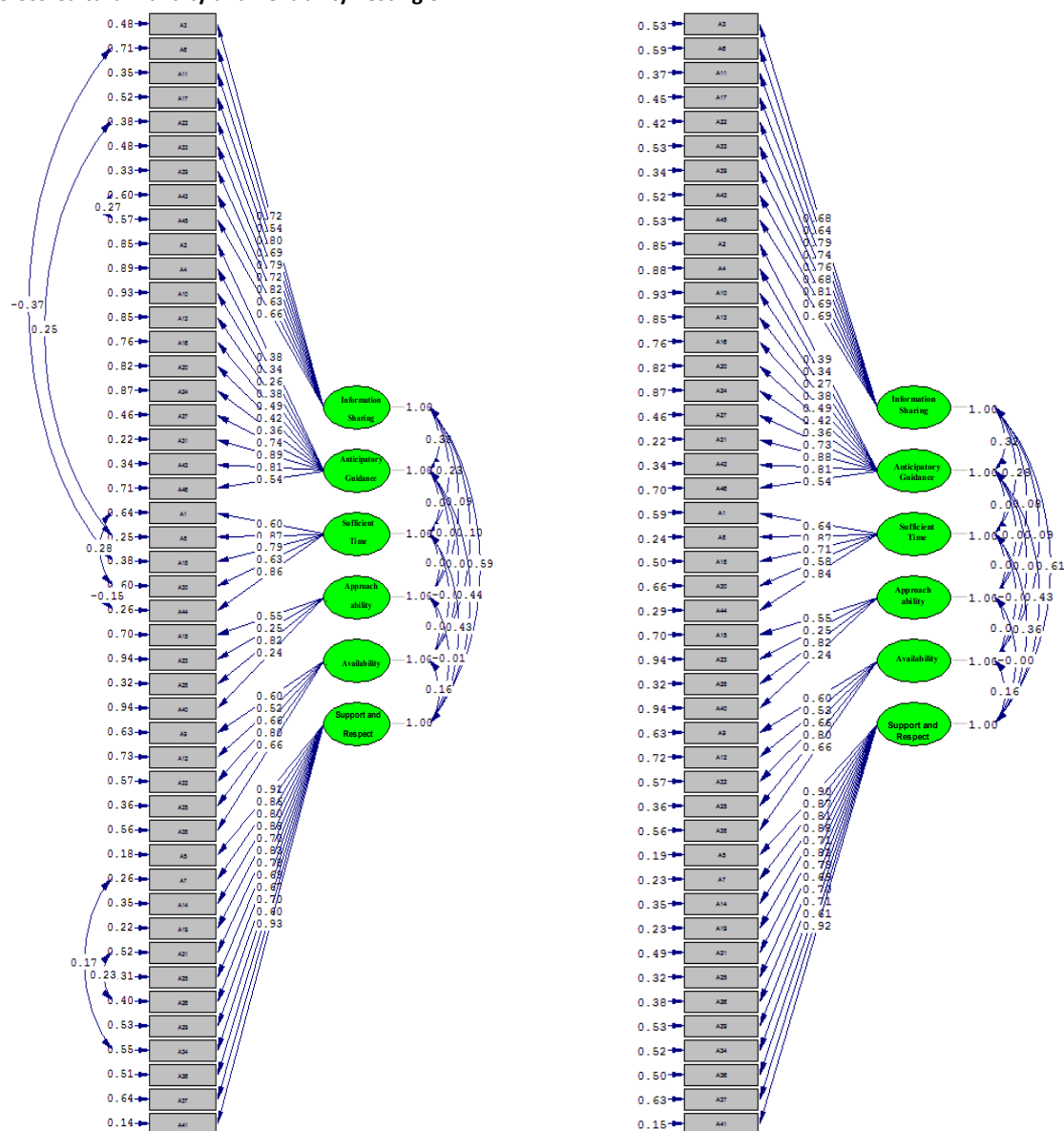
Figure 1) Primary model and modified model CFA of six factors QPCQ

Table 2) Indices of the 6-factor model of QPCQ in the basic and modified model

Models	Modified model	The basic model
AGFI	0.90	0.52
GFI	0.91	0.56
SRMSR	0.11	0.11
RMSEA	0.074	0.12
NFI	0.90	0.76
CFI	0.92	0.80
X²	2017.73	4064.09

AGFI: Adjusted Goodness of Fit Index; GFI: Goodness of Fit Index; SRMSR: Standardized Root Mean Square Residual; RMSEA: Root Mean Square Error of Approximation; NFI: Normed Fit Index; CFI: Comparative Fit Index; X²: Satorra-Bentler χ2.

Table 3) Results of the reliability of the Iranian QPCQ

Domains	Mean±SD	The confidence interval of ICC	ICC	α	Sig.
Information sharing	34.75±6.39	0.0-89.46	0.97	0.92	<0.001
Anticipatory guidance	47.19±5.55	0.0-85.96	0.92	0.88	<0.001
Sufficient time	47.26±8.51	0.0-71.98	0.84	0.83	<0.001
Approachability	19.47±3.70	0.0-68.44	0.80	0.68	<0.001
Availability	6.70±1.89	0.0-70.97	0.83	0.87	<0.001
Support and respect	19.62±3.48	0.0-95.98	0.98	0.95	<0.001
Total	174.99±17.25	-	-	0.90	-

Discussion

This study evaluated the psychometric properties of the QPCQ and adapted it to the Iranian culture. The 46-item QPCQ and each of the six subscales was found to be a valid and reliable measure among Iranian women. Construct validity was verified in the present analysis. The results of this study were similar to the Australian and original versions [15, 24]. The questionnaire demonstrated acceptable internal consistency reliability when tested in an Iranian population. The Cronbach's alpha for the overall QPCQ of 0.90 was acceptable and similar to that determined in the Canadian (0.96) and Australian (0.97) populations, as was the Cronbach's alpha for each subscale in the Iranian sample (0.68 to 0.95) compared to those in the Canadian sample (0.73 to 0.93) and Australian sample (0.74 to 0.95) [15, 24]. The test-retest reliability QPCQ was previously established [15, 24].

The QPCQ is the first published instrument to assess the quality of prenatal care systematically. Wong *et al.* [14], Barry *et al.* [25], Beeckman *et al.* [26] have developed a PIPC instrument that measures only one quality dimension. The QPCQ helps researchers to examine the relationship between quality of care and several outcomes for mother and child, health-related activities, and the use of other health services. It can be used to analyze the consistency of prenatal care across regions, populations, and models of service delivery, with subscale scores providing information on individual care components. The QPCQ is intended for women to complete after 36 weeks of pregnancy or within the first six weeks of pregnancy and has been explicitly designed to extend to all women seeking prenatal care; it does not discuss the level of care unique to risk conditions [15]. A score can be determined for both the total QPCQ and each of the subscales [15]. The QPCQ can also be useful in quality improvement and enhancement programs designed to analyze and strengthen prenatal care organizations and procedures and eventually positively affect health-related results. Effectiveness, patient-centeredness, timeliness, efficiency, equity, safety, and the seventh aspect of quality, the care provider-patient relationship, are elements of a high-quality health system [2, 27]. The QPCQ items represent many of these items. They integrate the concepts of effective, evidence-based practice (e.g., "I was given adequate information about prenatal tests and procedures"), timeliness (e.g., "My prenatal care provider(s) always had time to answer my questions"), and equity (e.g., "My decisions were respected by my prenatal care provider").

Similarly, the QPCQ items represent components of a recently implemented quality maternal and newborn care framework that emphasizes high-quality clinical care, collaboration, education, information, and respect [6, 28, 29]. Given that this questionnaire has not been evaluated in other parts of the world for psychometrics, it was impossible to compare its psychometrics. The QPCQ is a valid and reliable self-report measure of the overall quality of antenatal care and quality of care related to each of the subscales. It demonstrated acceptable internal consistency reliability, and the six factors (subscales) were confirmed in an Iranian population. This instrument can be used in research and quality assurance, and improvement initiatives. The QPCQ requires testing in various health care systems, service delivery models, and populations that are substantively different from the Australian and Iranian contexts to substantiate its validity and reliability in diverse settings. It fills a much-needed gap in the scientific foundation for assessment of antenatal care practices and the benefits of quality antenatal care, and the QPCQ items reflect the Institute of Medicines [2] premise that "Good quality means providing patients with appropriate services in a technically competent manner, with good communication, shared decision making, and cultural sensitivity.

The dimensions of care quality commonly used in countries policies depend upon a standard in crossing the Quality Chasm as "safe effective, patient-centered, timely, efficient, and equitable care" [1]. National policies addressing maternity services should focus on the centrality of the midwifery workforce and how it contributes to high quality and safe care. Access for women to quality midwifery facilities should have been part of the initiative to achieve every woman's right to the best possible health care during pregnancy and childbirth.

The strength of the study is the use of various services. This study was performed in Ramsar as one of the northern cities of Iran with an average population. Assuring the psychometrics of the test requires reviews in more diverse environments. Consequently, it is suggested that the validity and reliability of the questionnaire be checked in other cities of Iran and Other countries.

Conclusion

According to the results of this study, the Persian version of QPCQ has acceptable validity and reliability among the Iranian women population. This tool can be used to evaluate the quality of prenatal care in future studies in Iran. The Iranian researcher could be using this questioner without any change in its structure. This reliable instrument can be applied to assess the existing status.

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