

Psychometric Characteristics of Childbearing Motivation Questionnaire: A Review

Fatemeh Shoae¹, Fatemeh Hafezipour², Ehsan Khoshnejad Afkham², Mehdi Mameneh³,
Leila Mohammadabadi⁴, Behnaz Shafiei Rad⁵, Omolbanin Heydari⁶, *Masumeh
Ghazanfarpour⁶, Masaudeh Babakhanian⁷

¹Kowsar Hospital, Department of Gynecology and Obstetrics, Shiraz University of Medical Sciences, Shiraz, Iran. ²Department of Pediatrics, Kashan University of Medical Sciences, Kashan, Iran. ³Faculty Member of Paramedical School, Ilam University of Medical Sciences, Ilam, Iran. ⁴MSN Geriatric of Nursing, Neyshabur University of Medical Sciences, Neyshabur, Iran. ⁵MSc of Medical Toxicology, Student Research Committee, Department of Pharmacology, School of Medicine, Babol University of Medical Science, Babol, Iran. ⁶Students Research Committee, Razi School of Nursing and Midwifery, Kerman University of Medical Sciences, Kerman, Iran. ⁷Abnormal Uterine Bleeding Research Center, Semnan University of Medical Sciences, Semnan, Iran.

Abstract

Background: Considering the important role of understanding the childbearing motivations in counseling services about childbearing behavior, and need for applying a valid and reliable instrument to assess it in Iranian society, this study was conducted to determine Childbearing motivation Questionnaire was validated in two versions including Persian and English. The review aimed to comprehensively review the validity and reliability of Childbearing Motivation Questionnaire to provide comprehensive information to health providers.

Materials and Methods: We conducted an extensive search on online databases (Medline, EMBASE, Web of Science, Scopus, Cochrane Library, and CINAHL) from inception until September 2019. The following keywords were used: ("Childbearing Questionnaire" OR "CBQ") AND ("Factor Analysis" OR "Exploratory Factor Analysis" OR "Confirmatory Factor Analysis" OR "Reliability" OR "Psychometric" OR "Cronbach's alpha" OR "Test-retest Reliability" OR "Intra-class Correlation Coefficient" OR "ICC"). COSMIN checklist was used to assess the methodological quality of studies.

Results: Three studies were included in review. Intra-class correlation coefficient (ICC), Cronbach's alpha coefficient and the test-retest reliability indicated satisfactory reliability of the CBQ. Original version of Childbearing Motivation Questionnaire was developed by Miller (1995). In Persian version, original model did not show the 'acceptable' fit. After removing eight factors with low loading and two correlated error terms, modified model was found to have "adequate" fitness (Comparative Fit Index (CFI=.91), Tucker-Lewis Index (TLI=.90), Root Mean Square Error of Approximation (RMSEA=.04), and Chi-square to degree of freedom $\chi^2/df=1.92$).

Conclusion: The Persian and English version of childbearing motivation has good construct validity and reliability. Future research needs to test six-factor model with 49 total items and modified model with 43 items in various populations.

Key Words: Childbearing Motivation Questionnaire, Reliability, Psychometry, Validity.

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*Corresponding Author:

Somayeh Moeindarbary, (M.D), Department of Obstetrics and Gynecology, Neonatal and Maternal Research Center, Mashhad University of Medical Sciences, Mashhad, Iran.

Email: moeins@mums.ac.ir

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1- INTRODUCTION

The total fertility rate in Iran showed a reduction from 7 to 1.9 from 2001 to 2006 (1). It is rooted in the increasing use of contraception, delayed marriage and fertility, family planning and fertility services, wide media coverage, delayed marriage and pregnancy (2-4). The other factors which explain alternation in the fertility rate are: education, educational and health policies, facilities, religious beliefs, issues relating to material needs, economic conditions, age of marriage, the role of those around, and the role of health workers (5, 6-8). In recent years, not only the external factors but also the role of intrinsic factors in shaping behavior such as attitudes and motivations, and reinforcing the fertility tendencies and behaviors have raised the consciousness (8, 9). The current researchers have accentuated the part of motivation in explaining human fertility behavior (9).

Marriage and family formation greatly spurs people to have children and to perpetuate the marital relationship. These spurs have a considerable influence on the desired of children and the time of childbearing (10, 11). From Miller's point of view, the fertility motivations are divided into both positive and negative spurs. Each individuals' personal logic for wanting a child including the joys of pregnancy, birth and childhood, the traditional view, parenting satisfaction, the survival need of the parents, and the instrumental use of the child, have been referred as the positive one. Negative child bearing motivations include reasons of the reluctance to have a child, such as fear of being a parent, parental stresses, and child caring challenges (12). Miller's study (1995) of fertility motivation in the United States confirmed that positive fertility motivation was followed by a desire for more childbearing, more children, and less time lapse between births. In his study, negative fertility motivations had a

significant indirect relationship with the desire for childbearing and the number of children desired (12). As previously mentioned, numerous studies showing that internal attitudes and motivations are important factors influencing the tendency and formation of fertility behavior (13). It is essential to be aware of the health counseling provided by gynecologists, midwives and other health professionals to modify the fertility behavior and regulate pregnancy time and time lapse, and prior to designing any intervention to enhance fertility, one should consider fertility motivations in the community. Childbearing Motivation Questionnaire was validated in two versions including Persian and English. The systematic review aimed to comprehensively review the validity and reliability of Persian and English Childbearing Motivation Questionnaire to provide comprehensive information to health providers.

2- MATERIALS AND METHODS

2-1. Method

We conducted an extensive search on online databases (Medline (via PubMed), EMBASE, Web of Science, Scopus, Cochrane Library, and CINAHL) from inception until September 2019. No language limitations were undertaken. The following keywords were used: ("Childbearing Questionnaire" OR "CBQ") AND ("Factor Analysis" OR "Exploratory Factor Analysis" OR "Confirmatory Factor Analysis" OR "Reliability" OR "Psychometric" OR "Cronbach's alpha" OR "Test-retest Reliability" OR "Intra-class Correlation Coefficient" OR "ICC").

2-2. Data extraction and methodological quality

Two authors independently searched titles and abstracts of articles and then each relevant article was reviewed in detail. Then research team designed a form to include extracted information (Table.1).

The COSMIN (COnsensus-based Standards for the selection of health Measurement INstruments) checklist version 9.0 was used to assess the methodological quality of studies including internal consistency, reliability,

and measurement error, content validity, and structure validity, hypothesis testing (14). Within this checklist, aspects of construct validity were measured by five questions (**Table.1**).

Table-1: The characteristics of three studies and the COSMIN checklist (for evaluating methodological quality of studies).

Authors, Area of study, Year, Reference	Sample size	Study population	Internal consistency	Test-re test reliability,	Structural factorial
Pezekshki et al., (15), Iran, 2005	300 couples	Iran	(3)	(3)	-
Khadivzade et al., (14), Iran, 2018	448 couples	Iran	(3)	(3)	(3)
Miller, (12), USA, 1995	401 couples	USA	(4)	(4)	-

3- RESULTS

Some of characteristics of Childbearing Questionnaire (CBQ) were assessed (14). Finally, three studies (12, 14, 15) were included in review.

3-1. Construct validity

Khadivzade et al. (14) confirmatory factor analysis was performed using Amos software version 21.0 and two patterns were investigated. Model one was performed with 49 questions and nine constructs. Two items were removed before the beginning of the study, these included "Giving our other child a brother or sister" and "Having a baby takes care away from how much I can give my other child". This model was performed in accordance with the original model of childbearing although it is indicated that the model does not fit to data. Follow-up analyses showed that factor loadings of the eight "Being responsible for a needy and demanding baby", "Having a child who makes it necessary for me have a job", "Feeling quality or inadequate as a parent", and "Having a child who makes it necessary for me to have a job were not significant", thence, they were omitted. An examination of the output of the Amos software showed that correlating some of

the suggested error terms can considerably enhance the model fitness. Eventually, the model with 43 materials and correlating 13 error terms.

3-2. Reliability

In Pezekshki et al.'s study, Cronbach's alpha ranged from 0.71 to 0.83 for subscale of Positive Childbearing Motivation (PCM), and ranged from 0.7 to 0.82 for subscale of Negative Childbearing Motivation (NCM) (15). In Miller's study, Cronbach's alpha for PCM was 0.94 for parity-zero males and females and almost 0.92 for parity-one males and female. Cronbach's alpha for NCM was 0.87 for parity-zero males and female and almost 0.84 for parity-one males and female (12). In Khadivzade et al.'s study, Cronbach's alpha coefficients were 0.90 for PCM and 0.83 and NCM, respectively (14). The findings of Miller's study showed strong test-retest reliability in a subsample of 20 parity-one respondents in a 2-week interval (almost 0.92 for PCM and 0.84 for NCM, respectively) (12). In Khadivzade et al.'s study, test-retest reliability was assessed in a sample of 10 couples in a two-week interval using intra-class correlation coefficient (ICC). The test-retest reliability showed the acceptable range between 0.81 and 0.86 (14). The

findings of Pezeshki et al.'s study showed a strong test-retest reliability for the first 30 couples in a 2-week interval; test-retest reliability for PCM was 0.92 for male and 0.91 for female, and for NCM it was 0.82 for male and 0.87 for female, respectively (15).

4- DISCUSSION

To our knowledge, this is the first systematic review in the world to assess internal consistency and factor structure of Childbearing Questionnaire. The purpose of this study was to determine the construct validity and reliability of childbearing motivation questionnaire. The results of this study showed that the CBQ has good reliability and validity in world. The Cronbach's alpha ranged from 0.71 to 0.94, respectively (12, 14, 15). In one study, ICC was used to evaluate test-retest reliability; ICC was in the acceptable range between 0.81, and 0.86, respectively (14). Childbearing Questionnaire was developed and designed by Miller. This questionnaire included two subscales. Positive childbearing motives (PCM), measured by 28 items, include personal reasons for wanting a child. The five subscales related to the concept of positive fertility motivation in the Miller's questionnaire are: "joy of pregnancy, birth and infancy", "traditional parenthood", "satisfaction of child rearing", "feeling needed and connected" and "instrumental values of children". The Three subscales related to the concept of negative childbearing motivations in the Miller's Questionnaire include parental stress, fear of being a parent, child caring challenges. Miller in the United States in 1995 assessed the reliability of this questionnaire by means of a test-retest method using correlation for positive and negative motivation after a two-week interval, with values of 0.91 and 0.83, respectively (12). Moreover, Ghazanfarpour et al. (2014) in couples on the verge of marriage found the reliability of positive and negative fertility

motivation scales by Cronbach's alpha to be 0.91 and 0.94, respectively (16). There is a need of at least 200 samples to conduct confirmatory factor analysis (17). Sample size was 448 couples for Khadivzade et al.'s study (14), 300 couples for Pezekshki et al.'s study (15), and 401 married couples for Miller's study (12). Therefore, all studies had enough sample size.

4-1. Study Limitations and Suggestions

In accordance with COSMIN checklist, authors should determine the percentage of missing items and how the research team decides to handle missing items should be reported. This important item was not reported in any studies. Research work in future using longitudinal data, random sampling, and multiple sitting is required. The convenience sampling was to be used instead of random sampling in some studies; therefore, generalizability of the findings is limited to countries. Also, none of the studies reported factorial structure using exploratory factor analysis. Properties characteristics of CBQ were assessed for two English and Persian versions of factorial structure for other future studies should be assessed, when studies are assessed according to COSMIN checklist. Quality of studies was considered moderate. Therefore, work research should be well-designed in accordance with the checklist. All studies included in the systematic review was conducted based on classic test theory (CTT). Therefore, further work research should be conducted based on Item Response Theory (IRT).

5- CONCLUSION

The Persian and English version of childbearing motivation has good construct validity and reliability. Future research is needed to test six- factor model with 49 total items and modified model with 43 items in various populations.

6- CONFLICT OF INTEREST: None.

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