Psychometric properties of a Persian version of Respectful Maternity Care Questionnaire

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Abstract

**Background:** Getting a high quality and respectful care during pregnancy and delivery is one of the ways to reduce complications in women. Respectful care is a type of care that requires a valid instrument to measure. This study was conducted to determine the validity and reliability of the Persian version of the Respectful Maternity Care (RMC) questionnaire in 2018.

**Methods:** This study was performed on 150 women (in the first 48 hours after delivery), who were admitted in the postpartum wards of public hospitals from 1st January until 6th April 2018 in Zanjan city in Iran. Participants were selected randomly using Poisson distribution (Time) sampling method. After receiving the permission from the questionnaire's author, the internal consistency of the tool was measured by Cronbach's alpha coefficient after the Forward translation of Persian version of the tool under the supervision of experts. The reliability of the modified questionnaire was assessed using a test-retest method in 10 eligible postpartum women, who completed the same questionnaire after 72 hours again. The validity of the tool was confirmed by exploratory and confirmatory factor analysis using LISREL and SPSS soft wares.

**Results:** The original RMC tool was achieved an overall high internal reliability ($\alpha = 0.839$). Confirmatory factor analysis of original RMC scores demonstrated poor fit indices. In LISREL proposed paths for model, one item was excluded and a re-exploratory factor analysis was performed with the remaining 14 items. Four new subscales were defined for the revised tool including Abusive Care, Effective Care, Friendly Care, and Respectful Communication, which explained 60% of the variance.

**Conclusions:** The revised included four subscales of Abusive Care, Effective Care, Friendly Care, and Respectful Communication in 14 items which explained 60% of the variance. Given the importance of providing a high quality care in maternity, and variety of cultures and service delivery in different countries, further researches are needed on this RMC tool to be used in maternity care in different places.

Introduction

Pregnancy and childbirth can be considered as one of the most important periods of women's and their family's experiences in the life span, and the childbirth day, possibly is the most important moment in a woman's life. Despite the importance of this period, increasing maternal mortality rate and consequences of pregnancy are general public health concerns, Reducing the complications of pregnancy in women and infants is one of the goals in the Third Millennium Development in which promoting prenatal care, delivery and respectful care is one way to achieve this important goal (1, 2). According to evidence in developed countries, receiving a high-quality and respective care during pregnancy is one of the ways to reduce the complications of pregnancy in women and newborns. Respectful and high-quality care does not have a clear and consistent definition (2). Maternity Respectful care is a kind of client-centered care that is on the basis of respect to women's independence, expectations, authority, values, culture, and dignity. According to the respectful care system, the type of care is unique to each individual and his or
her family, as each individual has a different family, cultural, social, and ideological background. Therefore, attention to individual differences is crucial in this type of care. According to the Human Rights Declaration, respectful care is an inalienable right of every woman (1-6). The Purpose of implementing respectful care is to: raise awareness and demand respectful care from clients, launch a national commitment to institutionalize maternal care as a standard of care and to mobilize communities and service providers to provide respectful care as a natural right of clients (6). Respectful care measures are also taken to eliminate disrespect to and abuse of clients. Several forms of abuse have been reported in hospitalized people in labor ward so far, including physical abuse (e.g. slapping), lack of privacy during examinations, disclosure of patients’ secrets, disrespectful care, discrimination in providing services and utilization of hospital facilities, unnecessary episiotomies without the mothers’ permission, and throwing infants on mother’s abdomen (6). Sheferaw et al. conducted a seven-week study to determine the validity and reliability of the r Care Questionnaire in postpartum women. The Cronbach alpha reliability coefficient of the tool (questionnaire) was reported as 84% (2). Despite the importance of this issue among vulnerable groups of society and the need for this type of care in the health system, there are very few tools for evaluating and implementing respectful care in Iran, such as the study carried out by Taavoni et al. (2018). In the mentioned study, one of the original versions of the 59-item Respectful care Questionnaire was used among women who referred to the post-partum ward of a hospital in Tehran. A different questionnaire was designed and tested compared to the current study in Taavoni’s et al. study. The present study aimed to determine the psychometric properties and localization of the RMC respectful care questionnaire in Iran.

Methods

Study aim and design:

This cross-sectional analytical study (Psychometric Analysis) was conducted to determine the psychometric properties and localization of the Persian version of RMC respectful care questionnaire which was developed by Sheferaw et al (2016) (2) in Iran.

Ethics approval

This research has achieved ethical approval (ZUMS.REC.1396.83) from the Vice Chancellor for Research of the Zanjan University of Medical Sciences. At the beginning of the study the purpose of the study was explained in details for all participants and the informed consent of each participant was obtained.

Study population and sampling

This cross-sectional analytical study (Psychometric Analysis) was performed on 150 women who were selected using Poisson distribution random sampling method (Time). Eligible subjects were therefore women at any age, who were healthy from mental point of view, and admitted to the postpartum wards of public hospital from 1st January until 6th April, 2018 in Zanjan city, in Iran. Women who consented to participate in the study completed the questionnaire in the first 48 hours after delivery. The information
was collected from women who were admitted to the Mousavi hospital for delivery. All recruited participants willing to participate in the study, completed the questionnaire.

**Questionnaire/tool and translating procedures**

In the present study, the original version of the Respectful Maternal Care (RMC) Questionnaire of the Sheferaw et al (2) was used after obtaining the permission from the first author to translate and validate the RMC developed questionnaire in Iran. The RMC Questionnaire is a 15-items questionnaire, which is classified into four subscales on the basis of a 5-point Likert scale including; strongly agree (5), agree (4), don't know (3), disagree (2), and strongly disagree (1). The questionnaire included 4 dimensions of friendly care (first 7 questions), non-discriminatory care (questions 8, 9, 10), free care (questions 11, 12, 13) and timely care (questions 14, 15). At the beginning, the original questionnaire was translated to Persian from English (Forward translation-FWT). The translated questionnaire therefore was reviewed by five experts in reproductive health, health education, and epidemiology fields. The content validity of the translated questionnaire was determined by reviewing the questionnaire by 10 experts (Reproductive Health, Health Education, and Epidemiology). The reliability (using a test-retest method) and internal consistency of the modified questionnaire was assessed in 10 eligible postpartum women, who completed the same questionnaire after 72 hours again. The modified questionnaire was completed by 150 eligible women (ten participants per item). The confirmatory and exploratory factor analyses were used to assess the construct validity.

**Statistical analysis**

The Descriptive data analyses were analyzed using SPSS V.16 software to determine measures of center (mean, median, and mode). To evaluate the normality of the data Kolmogorov–Smirnov test was used. Cronbach's alpha co-efficient and Pearson's Co-efficient of Correlation were used to measure internal consistency, and reliability (correlation) of modified questionnaire's items, respectively. The confirmatory and exploratory factor analyses were used to assess the construct validity. Psychometric analysis of the tool was performed using confirmatory factor analysis and LISREL Software.

**Results**

The results of the data analysis over 150 study samples revealed that 75% of women were 34 years old. The majority (43%) of the women and their spouses didn't have a high school diploma (43%). Most of the women (90.7%) were housewives, and their husbands' were self-employed (39.7%). Most women (76.8%) reported insufficient income for living cost.

**Internal reliability and internal consistency**

The analysis of internal reliability of the original tool and related dimensions showed that the original RMC tool was achieved an overall high internal consistency and reliability ($\alpha = 0.839$). (Table 1). With the
exception of the subscale of friendly care, other subscales of the instrument did not have a good internal consistency score in the target population (Table 1).

**Table 1** Internal reliability for the Respectful Care Questionnaire and its subscales (N=150)
| Friendly care                                      | Cranach’s Alpha if Item Deleted | Cranach’s Alpha for subscales | Total Cronbach alpha |
|--------------------------------------------------|--------------------------------|-------------------------------|----------------------|
| Q. 1 I felt that health workers cared for me with a kind approach | 0.709                          | 0.764                         | 0.813                |
| Q. 2 The health workers treated me in a friendly manner | 0.644                          | 0.777                         |                      |
| Q. 3 The health workers talked positively about pain and relief | 0.614                          | 0.787                         |                      |
| Q. 4 The health worker showed his/her concern and empathy | 0.784                          | 0.747                         |                      |
| Q. 5 All health workers treated me with respect as an individual | 0.552                          | 0.795                         |                      |
| Q. 6 The health workers spoke to me in a language that I could understand | 0.343                          | 0.825                         |                      |
| Q. 7 The health provider called me by my name   | 0.276                          | 0.830                         |                      |
| Abuse- discrimination- Free Care                  |                                |                               |                      |
| Q. 8 The health worker responded to my needs whether or not I asked | 0.264                          | 0.598                         | 0.469                |
| Q. 9 The health provider slapped me during delivery for different reasons | 0.458                          | 0.332                         |                      |
| Q. 10 The health workers shouted at me because I haven’t done what I was told | 0.347                          | 0.283                         |                      |
| Free Care                                        |                                |                               |                      |
| Q. 11 I was kept waiting for a long time before receiving service. | 0.646                          | -0.010                        | 0.580                |
| Q. 12 I was allowed to practice cultural rituals in the facility. | -0.063                         | 0.795                         |                      |
| Q. 13 Service provision was delayed due to the health facilities’ internal problem. | 0.675                          | -0.059                        |                      |
| Timely Care                                       |                                |                               |                      |
| Q. 14 Some of the health workers did not treat me well because of some personal attribute. | 0.452                          | -                             | 0.516                |
| Q. 15 Some health workers insulted me and my companions due to my personal attributed. | 0.452                          | -                             |                      |

**Factor Analysis of the Tool**
Factor analysis was used to analyze the questionnaire. The fitness indices obtained Chi-Square = 647/51, Df = 84, p value < 0.0001. As it is presented in Table 2, the results reported that the instrument did not have appropriate fitness indices (Table 2).

**Table 2** The Fitting index of Original RMC Tool

|               |            |
|---------------|------------|
| Chi-square    | 674/51     |
| P value       | 0/0000     |
| df            | 84         |
| RMSEA         | 0.123      |
| SRMR          | 0.14       |
| GFI           | 0.84       |
| AGFI          | 0.77       |

LIZREL's proposed paths for model correction also had little effect on the fitness indices. Therefore, the obtained data were evaluated by exploratory factor analysis. At first, the sample size and its functionality were evaluated using KMO tests, BARTLET TEST OF SPHERCITY (Table 3). The results (Table 3) showed that the KMO was 734, indicating the suitability of the sample size. Bartlett test was significant (p
<0.0001). Next, MAXIMUM LIKELIHOOD and VARIMAX ROTATION were used for exploratory factor analysis (Table 4).

**Table 4** Explanatory factor analysis for original version of RMC Tool

| factor | Initial Eigen values | Extraction sums of squared loading |
|--------|----------------------|-----------------------------------|
|        | total                | % of variance | Cumulative % | total | % of variance | Cumulative % |
| RMC 1  | 5.144                | 34.293       | 34.293       | 3.375 | 22.499        | 22.499       |
| RMC2   | 2.232                | 14.878       | 49.171       | 2.211 | 14.740        | 37.239       |
| RMC3   | 1.466                | 9.774        | 58.944       | 1.983 | 13.221        | 50.461       |
| RMC4   | 1.244                | 8.295        | 67.240       | 1.297 | 8.644         | 59.105       |
| RMC5   | 1.082                | 7.215        | 74.455       | 0.711 | 4.740         | 63.844       |
| RMC6   | 0.801                | 5.343        | 79.797       |       |               |              |
| RMC7   | 0.771                | 5.138        | 84.935       |       |               |              |
| RMC8   | 0.525                | 3.502        | 88.437       |       |               |              |
| RMC9   | 0.434                | 2.895        | 91.332       |       |               |              |
| RMC10  | 0.388                | 2.588        | 93.920       |       |               |              |
| RMC11  | 0.286                | 1.905        | 95.826       |       |               |              |
| RMC12  | 0.254                | 1.695        | 97.521       |       |               |              |
| RMC13  | 0.187                | 1.247        | 98.768       |       |               |              |
| RMC14  | 0.152                | 1.017        | 99.784       |       |               |              |
| RMC15  | 0.032                | 0.216        | 100.00       |       |               |              |

**Table 5** ROTATED FACTORE MATRIXES
|     | Factor<sup>a</sup> |
|-----|-------------------|
|     | 1    | 2    | 3    | 4    | 5    |
| RMC 9 | 0.971 |       |       |       |      |
| RMC 15 | 0.961 |       |       |       |      |
| RMC 10 | 0.472 | 0.353 |
| RMC 4  |       | 0.783 |
| RMC 3  |       | 0.699 |
| RMC 5  |       | 0.531 | 0.398 |
| RMC 14 | 0.398 | 0.441 |
| RMC 13 |       | 0.913 |
| RMC 11 |       | 0.722 |
| RMC 8  |       | 0.526 |
| RMC 6  |       | 0.423 |
| RMC 1  |       | 0.550 | 0.639 |
| RMC 2  | 0.451 | 0.626 |
| RMC 12 |       | 0.541 |
| RMC 7  |       |       |       | 0.949 |

Extraction Method: Maximum Likelihood
Rotation Method: Varimax with Kaiser Normalization
<sup>a</sup> Rotation Converged in 6 iteration

The results clarified 5 factors with EIGEN VALUES to be higher than one were extracted (Figure 1) (Table 5) which explained 63.84% of the variance in the references. Examination of the ROTATED FACTOR MATRIX table showed that the Factor 5 had a factor loading only with item 7, and item 7 had no factor loading with any of the items. Since a single item could not form a scale item, it was excluded from the study and a re-exploratory factor analysis was performed with the remaining items (N=14).

In the 14-items instrument, 4 factors with higher eigenvalues were extracted, which explained 60.16% of the variance. (PLOTSCREE chart 1) and ROTATED FACTOR MATRIX table of these factors are as follows (Tables 6, 7, and Chart 1). Obviously, items number 9, 10, 14, and 15 had a factor loading on number one, so the items were defined as Abusive Care. Items 6, 8, 11, and 13 had a factor loading on the number two. Therefore, the above items were defined as the Effective Care dimension. Items number 3, 4, and 5 items
had a factor loading on number 3, so the above items were named as Friendly Care. Also, items 12, 2, and 1 had a factor loading on number 4, defined as the Respectful Communication dimension.

**Chart 1** the number of Eigen Values higher than one

![Scree Plot](image)

**Table 6** Explanatory factor analysis for Revised version of RMC Tool (14 items)
| Factor | Initial Eigen values | Extraction Sums of Squared Loading |
|--------|----------------------|-----------------------------------|
|        | Total | % of Variance | Cumulative (%) | Total | % of Variance | Cumulative (%) |
| RMC1   | 5.080 | 36.285 | 36.285 | 3.661 | 26.150 | 26.150 |
| RMC2   | 2.206 | 15.754 | 52.039 | 2.778 | 19.840 | 45.990 |
| RMC3   | 1.465 | 10.461 | 62.500 | 1.250 | 8.930 | 54.920 |
| RMC4   | 1.156 | 8.259 | 70.759 | .734 | 5.240 | 60.160 |
| RMC5   | .802 | 5.727 | 76.486 | 3.661 | 26.150 | 26.150 |
| RMC6   | .798 | 5.699 | 82.185 | 2.778 | 19.840 | 45.990 |
| RMC7   | .603 | 4.309 | 86.494 |        |        |        |
| RMC8   | .520 | 3.716 | 90.210 |        |        |        |
| RMC9   | .434 | 3.102 | 93.312 |        |        |        |
| RMC10  | .286 | 2.046 | 95.358 |        |        |        |
| RMC11  | .267 | 1.906 | 97.264 |        |        |        |
| RMC12  | .189 | 1.349 | 98.612 |        |        |        |
| RMC13  | .153 | 1.092 | 99.704 |        |        |        |
| RMC14  | .041 | .296 | 100.000 |        |        |        |

**Table 7** ROTATED FACTOR MATRIX for Revised version of RMC Tool
Discussion

Given the importance of respectful care in different communities, and the lack of studies in this field in Iran, the present study conducted to determine the validity and reliability of the Persian version of the Sheferaw's Respectful Maternity Care. The target population in the present study was postpartum women who were transferred to the postpartum ward. One of the reasons for choosing the Sheferaw's tool (15 items) was the low number of items used in this questionnaire because postpartum mothers were unable to answer long questionnaires due to their specific physical and mental conditions. Sheferaw conducted a study in Ethiopia on 509 postpartum women within 7 days after delivery. Data were collected using a questionnaire with 37 questions by interviewing. After analyzing the findings, the final questionnaire with 15 items was presented as a Likert scale. The reliability of this tool was assessed using Cronbach's alpha coefficient (0.85). The results of the psychometric evaluation of Sheferaw's tool in the present study revealed that its dimensions and related items could not be used in its original form in the study population in Iran. The use of factor analysis on the items reported that: items Number 9, 10, 14, and 15 had factor loading on number one, items number 6, 8, 11, and 13 had factor loading on number two, items 3, 4, and 5 had factor loading on number three, and items number 12, 2 and 1 had factor loading on number four. For the present study, item No. 7 was removed as it had no effect on any of the other items, and the number of items was reduced to 14. The dimensions of the items were named as 4 dimensions:
Abusive Care, Effective Care, Friendly Care, and Respectful Communication. Cronbach's alpha reliability was calculated for the following questions by a new classification, Cronbach's alpha for subscales, is as 0.757, 0.717, 0.765, and 0.710 for to four dimensions, respectively, indicating a good and acceptable Cronbach's alpha.

A review of the literature on psychometric studies of respectful care tools revealed that despite the importance of respectful care, especially in postpartum women, this area of research has received little attention from researchers in Iran. Therefore, the results of the few studies conducted in this field in Iran were compared. The only Iranian study available to the researchers in this study was the Taavoni et al. Study in 2018, during which a new questionnaire of respectful care was designed, and the validity and reliability of the tool was determined. In their study, they used a 59-item in 7 dimensions questionnaire on women referred to health care centers for postpartum services. Their study showed that the QRMCQI instrument had an appropriate Cronbach's alpha (0.93%) and the other items were within an acceptable range. Comparison of the present study with the Taavoni's study clarified that the two studies were different in terms of the sample size under study and the instrument being measured. Given that the present study was designed with the primary aim of evaluating respectful care in the delivery and postpartum ward, it seems that the tool used here, compared to the QRMCQI tool, as used immediately after delivery, acted as revealing more accurate information compared to the results of Taavoni's study as women become more aware of the actions taken during and after the birth, which reduces the incidence of Information Bias and Recall Bias (7). On the other hand, due to the greater need of women for respectful care during childbirth and postpartum care (due to unnecessary and repeated examinations, lack of privacy and hormonal changes after childbirth, psychological changes in maternal and newborns), it seems that more attention should be paid to the respectful care immediately after childbirth in Iran (8-11). Based on these principles and considering the psychological conditions and length of hospitalization of mothers, the low number of items in the used questionnaires, and its ability to be fast and inexpensive to implement, it seems that it is a useful tool. To our knowledge this the first tool with all these criteria is evaluated in Iran.

Another study by Rubashkin et al. in 2017 conducted using an online survey on 501 mothers aged 18 to 45 years with an experience of natural childbirth or Cesarean section who had children aged less than 5 years. The research tool was a researcher-made questionnaire containing 111 questions in different dimensions. The results showed that the tool had a Context validity of 98%. Compared to the tool used in the present study, it had the same differences of Taavoni’s study regarding to the number of items asked, the different community, the likelihood of bias, and the time taken to complete the questionnaire were presented (12).

The current study confirmatory and then exploratory analysis were used to determine the construct validity of the instrument. The result of the current study is not in accordance with the results of Sheferaw's study regarding the items of each dimension as well as the internal reliability (in the original form of the tool). One of the main reasons for this difference could be of the existence of “I don't know” option in the middle of the suggested options (with score 3). In the likert spectrum, the “do not know”
option is expected to lead to a normal distribution and to avoid polarization of responses. There was no option for abstaining answers in the tool under study. According to AMEE GUIDE No. 87, the "No Comments" option should have been left out of the options (13). Consideration of this in future studies can help to improve the tool. The present study is potentially the very first to validate this tool in Iran with high sample size.

The limited generalizability of the results to the population under study is one of the limitations of this study. This scale can obviously be used only on women who attend public hospitals indicating specific socio-demographic characteristics as the private hospitals did not agree to participate in the current study. General health condition of participants at the time of filling the questionnaires was another limitation. The last limitation of this study was women's honesty in answering to the questions which could be affected by their fear about the effect of their responses on service delivery.

[1] The Quality of Respectful Maternity Care Questionnaire in Iran

Conclusion

The revised RMS questionnaire included four subscales of Abusive Care, Effective Care, Friendly Care, and Respectful Communication in 14 items which explained of the variance at good level. The revised RMC questionnaire in Iran would be an appropriate tool for evaluating respectful care in women who have given birth as it includes low number of questions, examines four dimensions of respectful care, and has a high internal reliability in Iranian population. This revised questionnaire therefore could be used as a valid tool in all health and medical centers to measure the level of respectful care, as one of the pillars of clients' rights, and consequently would result in improvement of the quality of care, the services provided and the satisfaction of clients. Due to the importance of respectful care in health goal and limited number of relevant studies in Iran, further research in different communities are recommended.

List Of Abbreviations

RMC (Respectful Maternity Care)

MN (Masoumeh Namadian)

ME (Mina Esmkhani)

NA (Ali Nooroozy)

Declarations
**Ethics approval and consent to participate:** The present study has been performed in accordance to the ethical standards as laid down in the Declaration of Helsinki, and ethical approval was obtained from the Research Committee of Zanjan University of Medical Sciences (NO. IR. ZUMS.REC.1396.83). Informed consent was received from each participants, and the purpose of study was explained to each participant before the data collection.

**Consent for publication:** Not applicable

**Availability of data and materials:** The data that support the findings of this study are available from Zanjan University of Medical Sciences but restrictions apply to the availability of these data, which were used under license for the current study, and so are not publicly available. Data are however available from the authors upon reasonable request and with permission of Zanjan University of Medical Sciences.

**Competing interests:** The authors declare that they have no competing interests.

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**Authors' contributions:** All authors participated in the research and preparation of the manuscript, and all have reviewed and approved the manuscript as submitted and take public responsibility for it. MN and EM contributed to designing the proposal; EM undertook the data collection and data entry, MN, NA and EM conducted the data analysis, MN and EM wrote the first draft of the manuscript; MN prepared the final draft of the manuscript.

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Figures
Figure 1

Standardised solution for the proposed domains of the respectful Maternity Care Questionnaire Note: All structural relationships are statistically significant ($p < 0.01$). For the sake of clarity correlations among exogenous variables and errors are not shown.
Figure 2
the number of Eigen Values higher than one