



# ORIGINAL: Evaluation of Maternal Confidence in Neonatal Care Among Primiparous Pregnant Women in Sari, Iran

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## Introduction

The first 28 days after birth is one of the most critical neonate life stages, requiring a considerable amount of qualified care (1), based on WHO reports in 2018 2.5 million children died in the first month of life, approximately 7 000 deaths in each day because of conditions and diseases associated with lack of quality of skilled care and treatment (2). In the early years of life

## ABSTRACT

**Introduction:** The first 28 days after birth is one of the most critical neonate life stages and mother is the most important person meeting the basic needs of the baby. Besides the importance of knowledge about neonatal care maternal confidence is also important. The aim of this study was the evaluation of maternal confidence in neonatal care among primiparous pregnant women.

**Material and Methods:** In this cross-sectional study, 445 pregnant women who experienced pregnancy for the first time and referred to maternity care centers for prenatal care were studied. The translated Chinese version of the Maternal Confidence Questionnaire to local language was used. The validity of the questionnaire was approved by three experienced pediatrics professors. Reliability of the questionnaire using the test-retest method examined, 35 pregnant women (selected from a similar setting but out of the study area). Cronbach's alpha with  $r = 0.81$  was acceptable.

**Results:** In this study, information about 445 women were evaluated. The mean age of the subjects was 28.39 years ( $SD = 4.66$ , range = 19 - 39). The mean ( $SD$ ) of the total maternal confidence score was 58.87(3.75), Which included knowledge ( $21.09 \pm 2.1$ ), tasks ( $22.09 \pm 1.8$ ) and feelings ( $15.67 \pm 1.17$ ).

**Conclusion:** Higher maternal confidence was related to knowledge and task subgroups and the feeling subgroup had the lowest score.

mother is the most important person meeting the basic needs of the baby (3), and because of maternal role importance one of the World Health Organization's programs is to empower mothers to improve the quality of child care (2). In this way, primiparous mothers have less experience than multiparous mothers in providing better quality care to their babies and need more

support (4). Several factors influence neonatal care by the mother, Although Lack of knowledge or wrong and traditional methods especially in primiparous mothers is very important (5), confidence is also important, which is defined as a mother's perception that she is able to care her infant (6). Lee, Ja-Hyung found that mothers who were more confident in providing maternal roles received higher neonatal care scores (7). Lack of confidence in the early postnatal period leads to feeling stress and negative experience of motherhood, so low competency for caring for the infant (8,9). Upgrading maternal knowledge can raise the mother's confidence and reduce false or traditional beliefs about neonatal care (10). Loo et al in their study found that maternal confidence was related to the diagnosis of baby autonomic signs (11) and Fasanghari et al. in their study concluded that there is a significant difference between mean maternal self-confidence changes before and after training (12). Goto et al. in their prospective study resulted that the proportion of mothers who had not child care confidence was 48% (N=67) in Japan and 63% (N=54) in Vietnam and maternal confidence were associated with previous experience, unintended pregnancy, unemployment and education (13). In other studies baby's temperament, social support and depression (14), mode of delivery, baby's gender and education (15) were correlated with maternal confidence. Maehara and his colleagues found that feeling overwhelmed by postpartum routines, needing a longer time for feeding, and pregnancy with complications, lack of prior experiences and communication with their partner about parenting roles were associated with lower confidence (16). This is the first study to evaluate maternal confidence in neonatal care among primiparous pregnant women in the north of Iran.

## Methods

### Study design and setting

This study was a cross-sectional study evaluating the confidence of primiparous

pregnant women in newborn care and its relationship with some of the demographic variables.

### Participants recruitment

The Participants were pregnant women who experienced pregnancy for the first time and referred to a maternity care centers (Health centers or outpatient's clinic) for prenatal care in Sari, 2018.

### Sample size

In order to estimation of sample size the formula for estimating the ratio was used for a qualitative variable. To estimate the highest sample size, the proportion of pregnant women with a good or poor awareness about taking care of a newborn considered 50%, also the confidence level as well as the accuracy of the parameter estimation were considered to be 5% and with a probability of 10 percent loss of samples, the final sample size was 445 people. The sampling method was convenient, the number of samples needed from each health center was determined based on the ratio of pregnant mothers referred to each center to the total number of pregnant mothers referred to Sari Health centers for prenatal care (Cuato Sampling). In this regard, the deputy of Health of Mazandaran University of Medical Sciences report in 2018 was used.

### Inclusion Criteria

Primiparous pregnant women  
Nulliparity

### Exclusion Criteria

Unwanted pregnancy  
Multiparty  
Chronic physical and psychiatric illness (psychotic) diagnosed by the physician in Health center.

### Outcome measures

Maternal confidence was measured using the 14-item Chinese version of the Maternal Confidence Questionnaire (C-MCQ) (17-19). The C-MCQ measures maternal confidence in parenting skills and the ability to recognize

the infant's needs. Responses are rated on a 5-point scale from one (never) to five (a great deal), with scores ranging between 14 (lower maternal confidence) and 70 (higher maternal confidence). The C-MCQ has been shown to have acceptable content validity ( $>0.86$ ) (19,20), construct validity as shown by positive correlation between scores on the C-MCQ and Parenting Sense of Competence Scale ( $r = 0.53$ ,  $P < 0.05$ ) (21), and internal consistency reliability (Cronbach's  $\alpha = 0.86-0.93$ ) (18).

To ensure data quality of the Maternal Confidence Questionnaire, the questionnaire written in Chinese was translated into English and back to the local language (Persian). The validity of the questionnaire was approved by three experienced pediatrics professors. Reliability of the questionnaire using the test-retest method examined, 35 pregnant women (selected from similar settings but out of the study area) who referred to a rural health center for prenatal care answered to the questions. Cronbach's  $\alpha$  with  $r = 0.81$  was acceptable.

## Results

The mean age of the participants was  $28.39 \pm 4.66$  years. From selected maternity care centers, 445 women were eligible for the study. Maternal gestational age ranged from 0.5 to 9.1 months with a mean of  $5.71 \pm 2.18$  months. Among the total participants, 38 mothers (8.5%) were in the first trimester of pregnancy, 185 (41.6%) in the second trimester and 222 (49.9%) in the third trimester. Previous neonatal care experiences were positive in 371 (83.4%) mothers and negative in 74 (16.6%). Prenatal care was performed in different ways, the most common being at a rural health center (42.5%). The source of information about neonatal care was mostly through family members, relatives, friends (43.6%) (**Table 1**). The mean (SD) of the total score of maternal confidence based on MCQ was 58.87 (3.75). Tasks had the highest mean (SD) with 22.09 (1.8) (**Table 2**).

## Discussion

This study aimed to evaluate the maternal confidence in neonatal care among primiparous pregnant women in Sari city in 2018. In our study, 445 women participated. The mean age of the subjects was 28.39 years ( $SD = 4.66$ , range = 19-39). Most of the subjects had bachelor's degrees (41.6%). The others had a diploma (33.5%), under diploma (8.5%), and associate (16.6%), respectively. About 83.1% of mothers had no job and only 16.9% of them were employed. In a study by Liu et al., (2012) the 372 participants had an average age of 28.4 years ( $SD = 5.67$ , range = 18 – 52), and 89.7% had at least a high school-level education (8) which was similar to our study. In a study by Jamalivand et al. (2017) most of the people surveyed did not have a specific job and were housewives (22) similar to ours. Nearly 50% of our study population ( $n=222$ ) were in their third trimester. 41.6% ( $n=185$ ) were in the second trimester and 8.5% ( $n=38$ ) were in the first trimester. However, in a 2009 study by Kuo et al., All subjects were in the third trimester (23). In our study, 42.5% of people in rural health centers received prenatal care. 17.3% gave prenatal care through midwives in private clinics, 7.4% with midwives in hospitals, 16.6% with obstetrician in private clinics, 8.3% with obstetrician in hospitals and 7.9% in urban health centers. In this study, the median frequency of receiving prenatal care in a rural and urban health center was 4.26 and 2.72, respectively. The median frequency of receiving prenatal care through midwives in private clinics and hospitals was 3.68 and 4.6, respectively. The median frequency of receiving prenatal care through obstetricians in private clinics and hospitals was 2.27 and 1.82, respectively. In the study of Liu et al., 71.1% received prenatal care (8). In the other study that been done by Fasanghari et al., in 2019 the frequency of receiving prenatal care was  $3.51 \pm 0.8$  in the intervention group and  $3.31 \pm 0.8$  in control group, respectively (12). In the study of Shrestha et al., (2016) in Nepal, in the intervention group and the control group

**Table 1. Demographic characteristics of the study population**

Characteristics		N	%
<b>Education</b>	Under diploma	38	8.5
	Diploma	148	33.5
	Associate	74	16.6
	Bachelor	185	41.6
<b>Maternal Occupation</b>	Employed	75	16.9
	Unemployed	370	83.1
	Midwife (Private Clinic)	77	17.3
<b>Prenatal Care</b>	Midwife (Hospital Clinic)	33	7.4
	Obstetrician (Private Clinic)	74	16.6
	Obstetrician (Hospital Clinic)	37	8.3
	Rural Health Center	189	42.5
	Urban Health Center	35	7.9
<b>Source of information About Neonatal Care</b>	Radio & TV	40	9
	Books & Presses	120	27
	Social Media	27	6.1
	Health Care Center Resources	30	6.7
	Prenatal Care Responsible	34	7.6
	Family Members, Relatives, Friends	194	43.6
	First Trimester	61.24	2.29
<b>Gestational Trimester</b>	Second Trimester	59.26	3.34
	Third Trimester	58.14	4.06
	Under diploma	61.24	2.29
<b>Education</b>	Diploma	59.58	3.56
	Associate	59.01	2.85
	Bachelor	57.76	4.1
	Employed	59.97	3.49
<b>Maternal Occupation</b>	Unemployed	58.65	3.77
	Midwife (Private Clinic)	59.77	3.68
	Midwife (Hospital Clinic)	60.36	4.6
<b>Prenatal Care</b>	Obstetrician (Private Clinic)	60.01	2.27
	Obstetrician (Hospital Clinic)	58	1.82
	Rural Health Center	58.03	4.26
	Urban Health Center	58.54	2.72
	Radio and TV	61.25	2.26
	Books and Presses	59.8	3.92
<b>Source of information About Neonatal Care</b>	Social Media	58.52	0.89
	Health Care Center Resources	57.67	1.51
	Prenatal Care Responsible	60.29	3.33
	Family Members, Relatives, Friends	57.79	4.01

**Table 2. Result of maternal confidence questionnaire (N=445)**

Score	Minimum	Maximum	Mean	SD
<b>Total</b>	52	64	58.87	3.75
<b>Knowledge</b>	17	24	21.09	2.1
<b>Tasks</b>	18	25	22.09	1.8
<b>Feeling</b>	14	19	15.67	1.17

78.30% and 82% of people had previous infant care experience (9). However, in the present study, 83.4% had previous infant care experience. In our study, sources of information about neonatal care were relatives and family (43.6%), books and presses (27%), radio and TV (9%), prenatal care responsible (7.6%), health care center resources (6.7%) and social media (6.1%), respectively. In the maternal confidence

questionnaire, the mean (SD) of the total score was 58.87 (3.75), Which included knowledge (21.09 ± 2.1), tasks (22.09 ± 1.8) and feelings (15.67 ± 1.17). The results of Jamalivand et al., study indicated a statistically significant increase in the maternal self-efficacy mean score of the two intervention groups (the booklet and the electronic software groups) compared to the control group at the end of the fourth week

after the delivery; however, no statistically significant difference was observed between the groups at the end of the fourth week after the childbirth in terms of the infant care behavior mean score. Both the electronic and booklet training methods were effective in improving maternal self-efficacy (22). The results of a randomized controlled trial on 136 primiparous women showed that a training package (including a face to face training session, three phone sessions, and a booklet) had a positive effect on increasing mothers' self-confidence and improving their functional status (24). Furthermore, Fonseca et al. (2012) have also emphasized the need to provide the training packages with the contents of the daily care of the baby, feeding, health care, special care of an infant in the case of illness, and family relations (25).

### Conclusion

Higher maternal confidence was related to knowledge and tasks subgroups and feeling subgroup had the lowest score.

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### Conflicts of interest

The authors declare that there is no conflict of interest regarding the publication of this article.

### Authors' contributions

Study design: M.A.  
Writing: H.J., A.R., and J.M.  
Final revision: All authors

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