

Effect of individualized instructions program on new Adolescents and Adults mothers regarding practices of newborn care

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Abstract: Pregnancy during adolescent age is associated with poor neonatal care outcomes, which may burden the adolescent mothers and their families. **Aim:** To compare fresh mothers of adolescents and adults regarding their newborn care practices in an individual instructional instruction program. **Methods:** Design: Quasi-experimental comparative study. **Setting:** The participants recruited from the postnatal unit in Woman's Health Hospital at Assiut University, Egypt, from October to November 2018. **Sample:** A total of 396 primiparous mothers, divided into two equal groups of adolescents, recruited based on eligibility criteria, primiparous mothers ages ≤ 18 -year-old and adult mothers ages > 18 -year-old **Results:** Comparison between adult and adolescent mothers revealed a significant difference in newborn care practices, breastfeeding, all items of hygienic care, and immunization. There were statistically significant differences before and after receiving the individual instructions program. **Conclusion:** The adolescent mothers' experience of neonatal care, reflected a significant improvement after receiving the instructional instructions during the early postpartum period.

Keywords: effect, individual instructions, new Adolescents, mothers, practices, newborn care.

1. INTRODUCTION

Adolescent girls constitute about 1/5th of the total female population in the world. Early marriage became reproducers for future generations and influences not only their health but also the health of newborns (Dube & Sharma, 2012 and Ferdous, & Zeba, 2019). The UNICEF in 2019 estimated 14 million teenage women between the ages of 15 and 19 give birth each year. Adolescent pregnancy poses a challenge to improving maternal and child survival because pregnant adolescents and adolescent mothers are likely to be uneducated, unemployed and destitute and might not, therefore, seek or utilize health care services for either themselves or their newborns' at critical times (Uzun et al. 2013; Singh et al. 2012; Rahman et al. 2012). Babies born to adolescent mothers are also at risk of mortality and morbidity. The susceptibilities of neonates are complicated by the young maternal age, increasing maternal and child mortality (Ganchimeg et al. 2014).

The postnatal period is a critical stage for women and newborns (The Lancet's Series 2014). The mortality for both occurs in the first four weeks after Birth (UN IGME 2014). Newborn's deaths reported 2.8 million in the first month of life, and one million of these newborns died on the first day (Lawn et al. 2014). Most neonatal deaths were in low and middle-income countries, which account for a growing proportion of all under-five mortality (Kim et al. 2013). Common neonates' deaths, low standard care practices such as hygienic care and nutrition deficiency, may lead to neonatal infection, diarrhea, malaria, measles, and malnutrition (De van der Schueren M.A.E., et al. .2017).

Many other factors contribute to newborn mortality, such as the mother's level of education, environmental conditions, and political and medical infrastructure (Genowska et al. 2015). However, every newborn needs essential Care, yet it is born or its weight. Essential newborn care (ENC) should be done immediately after Childbirth and continued until the first week. The essential newborn care ensures warmth, immediate skin-to-skin care, early breastfeeding, umbilical cord care, eye care, Vitamin K administration, and immunization. The mentioned effective health measures can help prevent about two-thirds of deaths at birth during the first week of life. Therefore, the more reduction in newborn mortality relies on saving more young lives, and the mother plays a vital role in this respect (Thenmozhi & Saraswathi 2017).

Hence, the World Health Organization (WHO) recently updated global instructions on postnatal care for mothers and newborns through a technical consultation process. The new instructions address the timing and content of postnatal care for mothers and newborns with a particular focus on resource-limited settings in low- and middle-income countries (WHO, 2015).

In Egypt, adolescent pregnant women and young children face obstacles and health challenges One of these challenges is maternal age that has been considered to play a role as a risk factor for neonatal mortality (MOHP 2014). Therefore, malnutrition and low birth weight (MOHP 2014, El-Zanaty 2009). Though healthcare services are commonly accessible in Egypt, there is a slight emphasis on the need for counseling programs to improve maternal and newborn health outcomes (Stephenson et al. 2012). Traditional rules play an imperative starring role in the instructions of new mothers. A previous study done in Mansoura, Egypt, confirmed that 58% of newborns not given breastfeeding but received fluids first, which is one the most frequent traditions followed by new mothers based on advice from their relatives like mothers-in-law (El-Gilany et al. 2014).

Another Egyptian study, (Brasington et al. 2015) was done to promote healthy behaviors among Egyptian mothers despite increased maternal and child health services. Many women still do not have access to the information, guidance, and support they need to maintain their families' health. We have demonstrated local civil society organizations' ability to bring effective counseling to be pregnant with minimal health programming experience. This study aimed to assess the effect of individualized instruction programs on new Adolescents and Adult mothers regarding newborn care practices. Through the following objectives:

- To assess the level of current- adolescents' mothers' practices regarding the care of their newborn.
- To assess the level of new- adults' mothers' practices regarding the care of their newborn.
- Compare between mothers' practices of newborn care before and after the application of individualized instructions program.
- Determine the relationship between mothers' practices and their educational level.

Hypothesis:

H1: The new mothers, either adults or adolescents, will show a significantly different level of newborn care practices after receiving the individualized educational training program.

H0: There is no significant difference between adults and adolescent mothers' regarding newborns' care practices after receiving the individualized educational training program.

The conceptual framework used to build up the intervention educational program was based on (Marsh et al. 2002) conceptual framework in which newborn care dramatically depends on the mother. Therefore, the study's core is to improve the mothers' newborn care practices (fig. 1) by investigating the factors affecting mothers' knowledge about newborn care methods, especially mothers age, either adult or adolescent mothers.

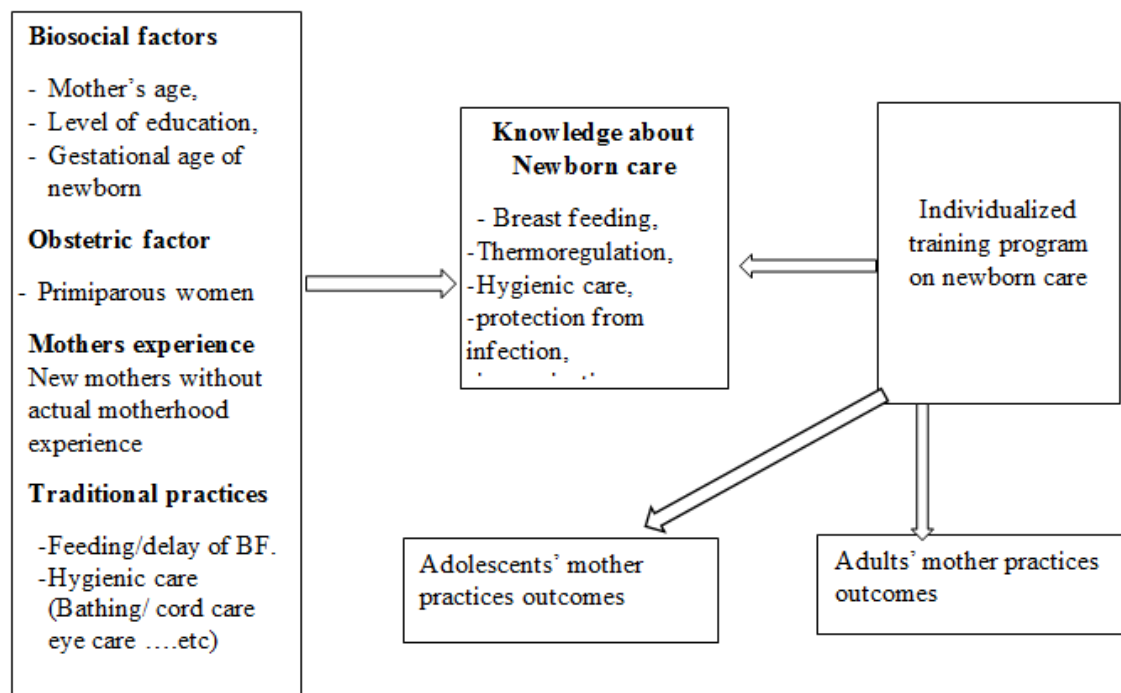


Figure 1: Framework of the study adopted from (Marsh, et al 2002).

2. METHODS

Research design:

A quasi-experimental comparative design was used to carry out this study as it fits the problem's nature under investigation.

Setting:

The study was conducted at the postpartum unit in the woman's health Hospital (WHH) at Assiut University Hospitals from October to November 2018. This hospital is the first Specialize facility for woman's health care in Upper Egypt. The capacity includes 300 beds and a postnatal unit composed of 80 beds.

Sample size

The sample size included 396 mothers of newborns selected according to eligibility criteria divided into two equal groups have of 198 participants in each group were determined to achieve 80% power to detect a clinically significant difference at $\alpha=0.05$. The inclusion criteria include the primiparous adolescent (< 18-year-old), and adult mothers (> 18-year-old), and mothers in the first 24-48 hours of the normal postpartum period. However, the exclusion criteria included all Caesarean sections, high-risk mothers' groups such as physical, physiological, psychological disorders, and newborns with congenital diseases.

Instruments tools:

A structured questionnaire developed by the researcher based on previous literature reviews [23- 24]. To collect the appropriate data of the present study and included: two parts. First part: Biosocial data of the mothers included: the mother's age, level of education, and gestational age of the current newborn. Second part: Questions about newborn care practices such as feeding, thermoregulation, hygienic care, and protection from infection, immunization, observation, and the importance of medical follow up. The practices of newborn care were measured in terms of practice scores of multiple option items (Questions), four options in each item. A score of one (1) assigned for the correct answer, and a score of zero (0) given for wrong or "do not know" responses. The total score 21 points, knowledge related to practices scored according to the number of correct answers in each category 18-21 Excellent- 14-17 good - the cut off score is 14, and less than (< 14) is a poor level of knowledge.

Intervention "Instructional program":

The first stage of the program: The researcher (HF) Ph.D. of obstetric nursing started to recruit the eligible participants after explaining the study's aim to get the consent form. Then ask each participant about the primary source of her experience to care for the newborn. Then the questionnaire items about the standard practices of newborn care. For example, new mothers asked about the care of newborn eyes, skin, temperature, or keeping warm in the form of multiple-choice answers. This "before" program took 15-20 minutes.

The second stage of the program: The researchers provided program sessions for mothers regarding to care of their newborn's eye, cord, diaper, skin, wrapping and keeping warm, and end with breastfeeding correct positions and counseling about the importance of initiation and continuing of the breastfeeding which consumed from 25-35 minutes.

The researcher demonstrated each item of newborn care practices on the mothers' newborn, and the procedure took from 25-35 minutes to show how to care for newborn's eye, cord, diaper, skin, wrapping and keeping warm, and end with breastfeeding correct positions and counseling about the importance of initiation and continuing of the breastfeeding. Furthermore, at the end of the day 3-4 hours later, the researcher returns to the new-mothers and again asks about the newborn care practices using the same questionnaire to check the participants' feedback in the form of an "after" instructional program which finishes between 15-20 minutes. Finally, the researchers gave guideline instruction by Arabic language for each participant for each participant to take home as a feedback. The booklet includes all illustrated pictures guiding the mother for every newborn care item and recommends her to back to it if she missed any of the care steps.

The validity of the questionnaire

Content validity of the questionnaire and modifications are done according to the revision and suggestions given by the five expertise from maternity and pediatric nursing faculty staff. The internal consistency and Cronbach's alpha were calculated using the SPSS program. Reliability coefficients of correlation of practice tool were excellent (0.9).

A pilot study was carried out on 40 mothers who met the eligibility criteria of the study. Then data were collected through interviewing mothers individually. Based on this pilot, the questionnaire was modified in questions number 1 and 2, which includes ten items related to practices not in Egyptian culture about newborn care. However, question number 3 was about breastfeeding and used the word "Ghee" modified to herbal due to Egyptian mothers' applicability.

Ethical Considerations

The informed consent would be obtained orally from all participants due to low literacy rates within the targeted population. The ethical committee approved the research proposal of the faculty of medicine and nursing faculty at Assiut University on 17/08/2017. (No. 231) the ethical committee of faculty of medicine, and faculty of nursing Assiut University. The informed consent included written consent and verbal consent from 396 participants who had limited literacy.

Statistical analysis

All statistical analyses performed using SPSS version 22.0 software (I.B.M. Corporation, U.S.A.). Fisher's exact test was used for reported numbers and percentages. Therefore, the categorical study data analyzed with the Chi-square test. P-value <0.05 was considered statistically significant. For comparison of means and S.D. using t- test.

3. RESULTS

Table 1 shows the sociodemographic characteristics and information sources of participants. It found that the mean age of participants was 24.2 ± 3.9 . For the occupation, the vast majority (88.9%) of mothers were housewives—more than two-thirds (70.5%) from rural areas. Therefore, more than one-third of mothers (38.9 %) had a secondary school for the education level. In comparison, 19.4 % were illiterate, and only 8.3% of mothers had a baccalaureate degree as the source of information regarding newborn care. About three-quarters of mothers (72.2 %) got their information about newborn care from elders and relatives, while 16% got their friends' information. However, another two sources of information revealed the same percentage, 11.1% for mass media and health professionals.

Table 2a. It compares mothers' expected practices of newborn hygiene before and after the specific guidelines' instructions. The findings reflected differences in women's answers for both ages' groups. The new adolescent mothers ≤ 18 years-old practices of eyes clean by sterile swab improved from 80(40.0) % before the instructions to 180(90.9) % after the instructions, and there was a statistically significant difference ($P < 0.001$). While the adult mothers improved from 113(57.1) % to 198(100), and there was a statistically significant difference ($P < 0.05$). Delayed Newborn bathing 6 hours at least, this item achieved tremendous change from 0(0.0) % to 198(100) and a statistically significant difference ($P < 0.001$). Use warm water for the new bath, both groups have the right information, and there is no statistically significant difference ($P = 0.44$). All practices of the hygienic care such as (special care for newborn's axilla, buttocks, and genitals; prevent water from entering the ears, eyes, nose, and mouth; massaging newborn with oil for circulation; The newborn kept warm and assess body temperature of the newborn) reflected a statistically significant difference at ($P < 0.001$, $P < 0.070$, $P < 0.001$, $P < 0.05$, $P < 0.001$) respectively. Besides, the immunization schedule has dramatic change among adolescents' mothers from 0(0.0) % to 185(93.3) % and a statistically significant difference at $P < 0.024$.

Table 2b. The comparison between the two groups regarding breastfeeding initiation within the first thirty minutes displayed that (16.7%) changed to (83.3%) and (37.9%) doubled to (62.1%) of adolescent and adult mothers respectively with a statistical significance difference at ($P < 0.001$). Similar significance difference regarding No. of B.F./day, the meaning of exclusive B.F., and Cause to burp newborn after B.F. at ($P < 0.001$). However, there is no statistically significant difference between the type of first feeding solution and mothers' age. Regarding mothers' cord care, the relation reflected a statistically significant difference at ($P < 0.001$) except the time Umbilical cord fall, reflected no significant difference at ($P < 0.292$).

Table 3 showed the relationship between the mean and S.D. of mothers' care practices and their education level. The relationship reflected a statistically significant difference at $P = 0.00$ between mothers' expected practices of breastfeeding, cord care, and personal hygiene as the less educated, the less mean score of practices. Consequently, the total practice of newborn care concerning educational levels reflected a statistically significant difference at $P < 0.001$

Table 4 shows the relationships of the mother's practices of newborn and thier age groups. It reflected a statistically significant difference between mothers' practices personal hygiene, maintenance of body temperature, Immunization, and Knowledge about newborn care, at $P < 0.050$, $P < 0.026$, $P < 0.001$, and $P < 0.042$ respectively.

4. DISCUSSION

This study tried to find a simple instructional method to teach new mothers how to care for their newborns. Neonatal care such as cord cleaning to avoid infections and immediate breastfeeding prevent the traditional use of warm fluids and undesirable outcomes Osman et al. 2018). Therefore, the study aimed to assess the effect of individualized instruction programs on new Adolescents and adult mothers regarding newborn care practices.

The current study reflected varieties of newborn care practices expected to be done by new mothers. Among new adolescents' mothers, the practice information ranged between "zeros" percent regarding "frequency of newborn bathing" and maximum "fifty" percent regarding "Using warm water for newborn's bath. However, the new adult mothers were better. They ranged between almost one-fifth regarding "Clean newborn with sterile cotton" to two-thirds regarding "prevent entering of water into Ears, eyes, nose & mouth." The adult mothers interpret this experience with their young siblings before marriage, while the young mothers have no experience before.

The participants' characteristics in the current study are harmonized with the Egyptian research by ^[26] in which the participants' age category and average. However, more than fifty percent were from a rural area; this difference may be attributable to the participants' different locality. Cairo is the capital, and the rural regions scarce, while the Asyut governorate in Upper Egypt has numerous rural areas. Another difference regarding education as the minority of mothers had secondary education. At the same time, our finding displayed about two-fifth; the distribution of education level may interpret this difference as our study does not have the level of reading and write while the Cairo study showed about two-thirds could read and write.

Source of mothers' information

In this study, most mothers' sources of information regarding newborn care were from elders and relatives, while 16% got their information from friends. However, the other two sources of information revealed the same percentage, 11.1% for health professionals and mass media, respectively, which interpreted the most low-level information regarding newborn care practices. These findings matched with a previous Egyptian study (Osman et al. 2018) in Upper Egypt, the same cultural environment. The results confirmed that newborn care was used mainly traditionally and only based on relatives or elderly family members' instructions.

Contradictory, the study of Amolo et al. 2017 in which the primary source of information was from health care providers, as two-thirds out of nurses followed by nurses, followed by fifty percentage out of physicians. Compatible with the Kenya study (KDHS 2015), which disclosed that the vast majority of women in Kenya received information during antenatal care from a healthcare provider and about two-thirds out of (nurses and midwives) followed by one-third out of doctors. This difference infers that participants in the mentioned studies mainly depend on the health team as the source of newborn care information. At the same time, our research is primarily based on families and friends. Furthermore, the dramatic improvement in our findings regarding mothers' practices of newborn care owing to the lack of antenatal care should provide them with the source of information from the health team.

Mothers' practices of newborn care "Eyecare, cord care, and hygienic care."

The expected practices of new-adolescent mothers (≤ 18 years-old) regarding using sterile cotton for newborn eye care improved from less than fifty percent before the instructions to the majority after the instructions with a statistically significant difference ($P=0.001$). In comparison, the adult mothers improved from fifty-one percentage with a statistically significant difference ($P=0.05$). The newborn's cord care and hygienic diaper care improved in both groups of adolescents and adult mothers with a statistically significant difference ($P=0.001$) before and after the applied instruction guideline.

Likewise, Egyptian and Indian studies (Eraky & Hassan 2018; Kudachi et al. 2017) respectively confirmed that most participants significantly improved after receiving an education program. Continually, the findings of previous studies (Eraky & Hassan 2018. Shrestha et al. 2013) matched with our findings regarding cord care, as the furthestmost of mothers achieved certain practices after the education. The researchers attributed this result to a lack of mothers' preparation during the prenatal period.

Regarding newborn bathing, it reflected that none of the adolescents' mothers know the correct time of bathing, which is at least six hours after delivery according to recommendations of (World Health Organization (2017). versus one-third of adult mothers with a statistically significant at ($P= 0.00$). Moreover, almost one-third of both groups practiced maintenance of baby wrap and warm. Comparably, the studies conducted in Nepal and Pakistan (Singh et al. 2019; Memon et al. 2019) confirmed that one-third to two-fifths of participants did not follow the right time of newborn bathing or immediate wrapping to maintain the body temperature. However, another study done in Nepal reported that three-quarters of the participants assumed that newborns should be cleaned and bathing early (Khanal et al. 2012). Moreover, Karkee, and Khanal, 2015 reported that only one-quarter of newborns were bathed within six hours of birth. The difference between our study and this study was customs and traditions belief differences as in our study. Early bathing should be delayed avoiding cold or diseases for the newborn. On the other hand, the Pakistani study by Momen et al., 2019 interpreted the improvements in mothers' newborn care practices to proper preparation programs included health education and information received from health care team expected mothers, which need to be the most concern in Egypt.

Breastfeeding

Our study findings reflected that the comparison between the two groups regarding breastfeeding initiation within the first thirty minutes showed that less than one-fifth of adolescents and about one-third of adult mothers had correct answers with a statistically significant difference at $P= 0.00$. Our study findings displayed a poor level of standard practices; about five and ten percent of adolescents and adults' mothers respectively answered correctly; therefore, the majority of participants did not know this issue. Moreover, the Cause to burp newborns after B.F. reflected that most adolescents and adult mothers did not have the right answer.

These findings, similar to a study by (Osman et al. 2018) reported that nearly one-third of mothers who initiate breastfeeding one to four days after Childbirth, without difference between home and hospital-based birth, tend to dominate from traditional family practices rather than appropriate health care. Also, it reported that more mothers used

extra fluids and did not practice exclusive breastfeeding. This finding may be interpreted in a traditional manner followed by mothers by using herbal liquids to treat abdominal gases rather than burp to relieve gases.

The practices concerning participants' sociodemographic related factors

The total score after calculation, according to correct answers, reflected a statistically significant difference found between mothers' practices of newborn care and their ages—the higher score associated with the adult group more than 18 years old. Similarly, the findings reported by (Eraky & Hassan 2018; Momen et al. 2019; Mohini and Shetty, 2017; Yeshiwork et al. 2015) studies revealed that the older age group "more than 18 years-old" in relation to participants' practices were statistically significant, this attributed to the adult group was more realizable and able to receive postnatal instructions guidelines or education programs more than adolescent group. However, these findings were inconvenient with a study done by Castalino et al. 2014, which reported that most mothers had excellent knowledge and practice on newborn care. This discrepancy, interpreted by two factors in Castalino's study regarding the sample size, was only thirty participants. The other factor that all participants educated, which means good knowledge and, consequently, good practice.

The relationship between mothers' care practices and their education level reflected a statistically significant difference at $P= 0.00$ between mothers' expected practices of breastfeeding, cord care, and personal hygiene as the less educated, the less mean score of practices. Likewise, the finding (Singh et al. 2019; Momen et al. 2019) showed that higher education better knowledge and newborn care practice. Similarly, studies by (Rama et al. 2017; Jiji et al. 2014) confirmed that the level of education level significantly associated with the women's practices of newborn care. In which the low or no education had less score than those who had advanced education.

Regarding the mother's employment status, our study finding displayed significant relationships between mother's occupations and care practices at $P= 0.04$, respectively. The unemployed mothers reflected less awareness of correct newborn care. In the same line, the study by (Misgna et al. 2016) found that employed mothers were significantly associated with newborn care practice. This discrepancy with other studies (Memon et al. 2019; Tegene et al. 2015) showed no significant association of mothers' occupation with newborn care practices. The difference may be related to the difference in the respondents' sociodemographic characteristics in the study from different geographic areas.

5. CONCLUSION

This study concludes that the application of individual guidelines on newborn care relates to participants' ages. Practices of newborn care, in which younger generation "less than 18 & older age "older than 18 years old" both have poor practices related to newborn care before applying for the individual instructional program. However, because the ages mirrored the training level, the young ages achieved a dramatic improvement of up to 100 % with a significant relationship regarding newborn care practices. Therefore, individual instructional guidelines play a vital and similar role as postnatal home visits, which were not currently presented in Upper Egypt.

Implications for practices

- Applying the individual instructional guidelines in the hospital setting will improve newborn care practices and prevent neonatal morbidity.
- Using media channels to introduce newborn care through smart screens in the postnatal rooms will teach and persuade mothers immediately and comprehensively.
- Further research should apply newborn Care's App. in mothers' language to study that app's effect on developing health issues and women's satisfaction.

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APPENDICES - A

Tables:

Table (1): Distribution of mothers according to their sociodemographic characteristics

<i>Items</i>	No= 396	%
Age:		
≤18 Years	198	(50)
>18 Years	198	(50)
Range	18-36	
Mean ± SD.	24.2±3.9	
Residence		
Rural	279	(70.5)
Urban	117	(29.5)
Occupation		
Housewife	352	(88.9)
Government Employee	44	(11.1)
Level of Education		
Illiterate	77	(19.4)
Primary	132	(33.3)
Secondary	154	(38.9)
University	33	(8.3)
Source of information regarding newborn care		
Elders and relatives	286	(72.2)
Friends	66	(16.7)
Mass media (T.V. Radio, Newspaper)	44	(11.1)
Health professionals	44	(11.1)

Table 2a. Comparison of mothers’ practices of newborn care before and after receiving guidelines instructions.

Items	Age groups total N.=396.					
	<18 years N.=198			> 18 years N.=198		
	Correct “Before” no (%)	Correct “after” no (%)	P. value 0.00	Correct “Before” no (%)	Correct “after” no (%)	P. value
Newborn eyes kept clean by sterile swab.	80(40.0)	180(90.9)	0.00	113(57.1)	198(100)	0.050*
Clean newborn with clean /sterile cotton.	40(20.2)	198(100)	0.00	38(19.2)	186(93.9)	0.000**
Delayed Newborn bathing 6 hrs.	0(0.0)	198(100)	0.00	68(34.3)	198(100)	0.000**
Use warm water for the newborn bath.	99(50.5)	198(100)	0.00	198(100.)	198(100.)	0.441
Special attention to axilla, buttocks, & genitals.	80(40.4)	190(95.9)	0.00*	38(19.2)	195(98.5)	0.000**
Prevent entering of water into Ears, eyes, nose & mouth.	57(28.8)	181(91.4)	0.00*	130(65.7)	180(90.9)	0.070*
Massaging newborn with oil for circulation	20(10.0)	178(90.0)	0.00*	84(42.4)	184(92.9)	0.001**
The newborn kept warm.	60(30.3)	198(100)	0.01*	53(26.8)	145(73.2)	0.050*
Assess body temp. of newborn.	20(10.1)	188(90)	0.00*	90(45.5)	108(54.5)	0.001**
Immunization's schedule.	0(0.0)	185(93.3)	0.00*	30(15.2)	168(84.8)	0.024*

*P<05 **P<01

Table 2b. Comparison between mothers’ practices of breastfeeding and cord Care of newborn before and after instructions' guidelines.

Knowledge/ Items	Age groups total N.=396.											
	<18 years N.=198					> 18 years N.=198					X ²	P. value
	Correct “before” No. %		Correct “after” No. %		Correct “before” No. %		Correct “after” No. %					
Breast-feeding												
BF within 30 min	33	16.7	165	83.3	75	37.9	123	62.1	74.04	0.000**		
The first feeding	33	16.7	165	83.3	39	19.7	159	80.3	0.08	0.963		
No. of B.F./day	13	6.6	185	93.4	55	27.8	143	72.2	13.85	0.000**		
Exclusive B.F. means	11	5.6	187	94.4	22	11.1	176	88.9	44.74	0.001**		
Cause to burp newborn after B.F.	13	6.6	185	93.4	41	20.7	157	79.3	58.58	0.000**		
Cord care												
Umbilical cord falling	22	11.1	176	88.9	27	13.6	171	86.4	3.05	0.292		
Cause to observe an umbilical cord.	11	5.6	187	94.4	26	13.1	170	86.9	58.11	0.000**		
Causes for kept cord clean.	17	8.6	181	91.4	44	22.2	154	77.8	19.04	0.001**		
How to keep the umbilical cord clean	15	7.6	183	92.4	48	40.0	33	60.0	90.78	0.001**		

*P<05 **P<01

Table 3. Relationship between mothers’ practices of newborn care and their educational levels (total N.=396)

Newborn Care	Educational levels				F	P. value
	Illiterate	Primary	Secondary	University		
Breast Feeding	1.93±0.8	1.08±0.76	2±0.54	2.67±0.48	61.48	0.000**
Cord care	1.71±1.04	1.67±1.03	2.43±0.73	3.33±0.48	43.41	0.000**
Personal hygiene	2.67±1.25	3±1.08	3.14±0.92	3.67±0.48	9.88	0.000**
Maintenance of body temperature	0.86±0.64	1.17±0.37	1.29±0.45	1.67±0.48	28.67	0.001**
Immunization	0±0	0.29±0.45	0.43±0.5	0.33±0.48	29.01	0.001**
Total practice newborn care	6.58±2.41	8.29±1.76	8.79±1.27	11.67±1.27	80.46	0.001**

*P<05 **P<01

Table 4. Relationship between mothers ‘practices regarding newborn care and age groups

Newborn Care	Age groups		t	P. value
	≤18 years old	>18 years old		
Breast Feeding	1.71±0.7	1.73±0.96	-0.14	0.885
Cord care	2.14±0.84	2.09±1.13	0.49	0.623
Personal hygiene	3±1.14	4±1.05	1.25	0.050*
Maintenance of body temperature	1.07±0.6	1.85±0.55	2.11	0.026*
Immunization	0.36±0.48	0.18±0.39	4.00	0.001**
Knowledge about newborn care	7.29±1.76	8.14±2.59	1.63	0.042*

*P<05 **P<01