

Effect of Instructional Guidelines on Mothers' Knowledge and Practice regarding Neonatal Care

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Abstract

Background: The newborn's mother is the key person who takes care and fulfills the needs of the newborn either physiological or psychological. Therefore, it is essential to apply instructional programs that appreciate mothers to have the correct knowledge, home care practice, and attitude to raise their healthy children. **Aim:** To evaluate the effect of instructional guidelines on mothers' knowledge and practice regarding neonatal care. **Subjects and Methods:** **Design:** A quasi-experimental research design was used. **Setting:** The study was conducted in maternal and child health centers at Sohag City (Dar E Salam Abdallah health center). **Sample:** A Purposive sample of 150 neonates and their mothers. **Tool for data collection:** A structured interview questionnaire, which included three parts; (I) demographic characteristics; (II) mothers' knowledge and (III) the reported practice (pre/post) regarding breast feeding, thermal control, skin care, and cord care. **Results:** The main source of information for mothers was their family. There was an improvement of mothers' knowledge regarding all aspects of care of their neonates before and after implementation of instructional guidelines. There was a statistically significant difference in mothers' reported care practices of their neonates before and after implementation of the instructional guidelines regarding breastfeeding, kept warm practice, skin care practice, and cord care practices. **Conclusion:** Instructional guidelines had a positive effect on mothers' knowledge and reported practice regarding neonatal care. **Recommendations:** Instructional guidelines regarding neonatal care should be educated to mothers during antenatal period.

Keywords: Instructional Guidelines, Mothers' knowledge and practice, Neonatal care

Introduction:

Although these improvements are multifactorial, children are at the greatest risk of dying during the neonatal period (the first 28 days of life), with an average rate of 18 neonatal deaths per 1000 live births globally in 2017 (Hug et al., 2018). Neonatal mortality is a significant health problem worldwide, particularly in developing countries. Neonatal fatality in the first 28 days of life represents nearly two-thirds of infant death internationally and nearly 40% of deaths of children under the age of 5 years. Nearly 65% of the neonatal fatality happens in the first week of life, frequently at home, highlighting the need for early appropriate home care. Almost 99% of the four million neonatal deaths happen yearly in the developing countries and nearly half of

them at home far from the health care system (Arlington et al., 2017).

Nearly half of all newborn fatalities happen in the first 7 days, and although the risk of mortality decreases as time passes, every newborn needs careful care during the first month of life (Abebe et al., 2019). Improving neonatal home care practice may substantially improve survival of newborn babies in the first month of life. The WHO guidelines for crucial newborn home care practices encompass early and exclusive breastfeeding, hygienic care, cord care, thermal control, skin care, and recognition of danger signs that are clearly associated with major causes of neonatal mortality, particularly serious neonatal infection (Grover and Chhabra, 2016).

Neonates are „at risk“ for various health problems, even though they are born with average birth weights. The morbidity and mortality rates in newborn infants are high. They need optimal care for improved survival. Neonatal care is highly cost-effective because saving the life of a newborn baby is associated with survival and productivity of the future adult. Although parents are ultimately responsible for this care, nurses usually assume a major care-giving role while the infant is in the nursery. Good hygiene by nurses; mothers would reduce the likelihood of cold, dermatitis, herpes, and skin diseases being spread to more sensitive individuals in the family. Newborn babies are also at risk from maternal infection if hygiene is not adequate. The daily cleansing of the infant affords an excellent opportunity for making the observation that necessary during the immediate postnatal period (Menaka, 2017).

World Health Organization (WHO) recommends vital newborn care practices including promotion and support for early beginning of exclusive breastfeeding, thermal protection including promoting skin-to-skin contact, hygienic and umbilical cord care to decrease neonatal mortality and morbidity rate (Mohamed, 2018).

Mothers are the primary caregiver to newborns hence the care is mostly dependent on their level of knowledge, attitude, and practice (KAP) about newborn care. Therefore, this study aims to investigate the KAP of mothers about newborn care and its related factors to achieving optimum newborn care. The mother plays an important role as a member of the health care delivery team of their newborn babies. Mothers have three essential roles for caring of their newborn babies, which are protecting them from harm, promoting their emotional as well as their physical health, enforcing boundaries to ensure their safety, and optimizing their development (John et al., 2013).

The newborn's mother is the key person who takes care and fulfills the needs of the newborn either physiological or psychological. Therefore, it is essential to apply instructional programs that appreciate mothers to have the correct knowledge, home care practice, and

attitude to raise their healthy children. Correspondingly, nurses should determine the level of mothers' knowledge about their newborns' home care practice. This helps them in their planning process of mothers' educational needs for better well-being, growth, and development of their newborns, and prohibiting newborn's illness and fatality as well (Aziz and Lee, 2014).

Significance of the study:

The newborn health challenges faced in Egypt are more formidable than that present in any other country. According to the Egyptian Demographic and Health Survey (2014), the rate of newborn's fatality in Egypt constitutes 14/1000 newborns, whereas neonatal mortality in poorest areas in Egypt is 23/1000 newborns (UNICEF Children in Egypt, 2015), which reflected the importance of care with neonate in order to decrease this fatality by providing suitable and appropriate care for these newborn. There is a lack of national studies that have examined the knowledge and reported care practice toward neonates within delivered mothers.

Aim of the study:

The aim of this study was to evaluate the effect of instructional guidelines on mothers' knowledge and practice regarding neonatal care through:

- Assessing the mothers' knowledge regarding neonatal care
- Assessing the mothers' practice regarding neonatal care
- Monitoring effect of instructional guidelines on mothers' knowledge and practice regarding neonatal care.

Research hypothesis:

- H1: Mothers who are exposed to the instructional guidelines regarding neonatal care their knowledge will be improved compared to their pre-intervention level.
- H2: Mothers who are exposed to the instructional guidelines regarding neonatal care their practice will be improved compared to their pre-intervention level.

Subjects and Methods:

Design:

A quasi-experimental design was used to achieve the aim of the study.

Setting:

The study was conducted in maternal and child health centers at Sohag City (Dar E Salam Abdallah health center).

Sample:

A Purposive sample of 150 neonates and their mothers were selected from the previously mentioned setting. The inclusion criteria were postnatal mothers and their neonates who visited the MCH centers for their first postnatal follow-up of thyroid screening test and for child immunization during the first 4 weeks after delivery.

Exclusion criteria included:

- Mothers and their neonates who are suffering from chronic illness.

Tools for data collection:

Tool I: Structured interview questionnaire:

It was developed by the researchers after reviewing the related literature (Mohamed, 2018; Abebe et al., 2019; Arlington et al., 2017). It is included three parts:

Part (1): Demographic characteristics and obstetrical history of mothers, such as; age, educational level, residence, working status, type of delivery and their sources of information.

Part (2): Demographic and general characteristics of newborns, such as gender, gestational age, and birth weight.

Part (3): Mother's knowledge: it was developed by the researchers to assess mothers' knowledge regarding neonatal care such as exclusive breastfeeding; baby is kept warm, skin care, and umbilical cord care.

Scoring system:

Knowledge content was included 7 questions and each question was assigned to three score levels:

- Correct answer was given 2 points.
- Incomplete correct answer was given 1 points
- Don't know or the wrong answer was given zero.
- The total score was categorized into either satisfactory level from 60% and more than 8 points or unsatisfactory level less than 60% and less than 8 points from the total score (14 points).

Tool II: Mother's practice: it was developed by the researchers to assess mothers' practice regarding neonatal care such as breastfeeding practice, thermal control practice, skin care and hygienic practice, and cord care practice.

Scoring system:

Practice content was divided into two score levels, done was given 1 point and not done given zero. The total score was categorized into either adequate from 60% or more or inadequate level was less than 60%.

Operational Design:

The operational design for this study consisted of preparatory phase, content validity, pilot study and fieldwork.

Preparatory Phase:

This phase was including reviewing of literature related to mothers' knowledge and practice regarding neonatal care. This served to develop the study tools for data collection.

Validity and reliability of the tools:

The content validity was tested for clarity, comprehensiveness, appropriateness, and relevance and reviewed by five experts in pediatric nursing field and community health nursing field. Modifications were done according to the panel judgment to ensure clarity of sentences and appropriateness of the content.

The reliability of the tools was assessed through Cronbach's alpha test to assess the reliability of the questions related to knowledge, which was 0.78, and the reliability of the questions related to reported practices was 0.84.

Pilot study

A pilot study was carried out on 10% of the sample (15) mothers to observe the clarity and testing of the feasibility of the research process needed for modifications to develop the final form of the tools. Mothers involved in the pilot study were excluded from the study.

Field work

Data were collected from the beginning of January 2019 to the end of August 2019. The researchers attended the previously selected setting two days per week starting from 9.00 a.m. until 1:00 p.m.

Data was collected by all the researchers and they introduced themselves to the mothers. Clear and simple explanations about the aim and nature of the study were discussed by the researchers with them. The interview took approximately 30-40 minutes for each mother to answer and fill the questionnaire.

The present study was conducted in four phases:

Preparatory phase:

The tool of data collection development: A review of the past and current related literature covering various aspects of care of neonates, using available books, periodicals, articles and magazines. The objectives were to get acquainted with the research problem to develop the study tools.

Assessment phase:

By using pre-test questionnaire to collect data from the studied mothers

Planning and implementation phase:

By developing the instructional guidelines content and implementing it. General objective of the instructional guidelines was to improve the nurse's knowledge and practices regarding care of their neonates based on the result of the pre-test questionnaire.

Data collection was done in a separate room in the MCH center. The researchers conducted the implementation phase of the instructional guidelines in two sessions for 30 min. Mothers were divided into subgroups, and each of them consisted of 6–10 mothers and instructional guidelines were implemented for each group separately (3 days/ week). The instructional

guidelines sessions include knowledge and practice regarding feeding, thermal control, skin care, and umbilical cord care. Several educational methods were used, such as group discussion, role play, demonstration, and re-demonstration. Moreover, visual aids were used such as posters, handouts, and booklets. The instructional guidelines were implemented in simple Arabic language.

Evaluation phase:

The study tool was used in the first week after delivery at the time of thyroid screening test and one month after the implementation of the instructional guidelines sessions at the time of immunization to evaluate the effect of the instructional guidelines on the studied mothers.

Administrative design:

Before starting the research, ethical approval was obtained from the scientific research ethical committee of the faculty of nursing. An official letter issued by the Dean of the Faculty of Nursing was obtained. The researchers met both medical and nursing directors of the selected setting to clarify the purpose of the study and take their approval.

Ethical considerations:

Informed consent was obtained from the mothers to participate in the study after the aim of the study was explained to them. The researchers informed the mothers that, the study was voluntary, they were allowed to not participate and they had the right to withdraw from the study at any time, without giving any reason. Moreover, they were assured that their information would be confidential.

Statistical Analysis:

The content of each questionnaire was analyzed, classified, and then coded by the researchers. Using SPSS software version 21, the data were tabulated and analyzed. Excel is used for figures. Descriptive statistics were used to present information in the form of frequencies, percentages for qualitative variables, and quantitative variables were described utilizing means and standard deviations. Paired T-test was utilized to measure the knowledge and practice of mothers before and after the guidelines, and analyze the differences. To evaluate the inter-relationships

among quantitative variables, Pearson correlation analysis was used At P-value.

Results:

Table (1): showed that the mean of age of the studied mothers was 25.9 ± 6.4 years. Regarding educational level was as follows: 40% of them were not educated, 13% of them can read and write, 30% of them had obtained diploma education, and 17% of them were university education. Regarding residence 59% were living in urban areas and 41 of them were in rural areas. Meanwhile, 38% of them were working and 62% were not working. Concerning types of delivery, 65% of the studied mothers delivered normally.

Figure (1): illustrated that the main source of information for mothers was their family (42%), followed by health care team (32%), then friends (19%), and the least one was mass media (10%).

Table 2 clarified that that 79% of the studied neonates were males and 21% of them were females. Regarding birth weight 49% of them were from 3.000 and less than 4.000 gm. The mean gestational age (in weeks) of the studied neonates was 38.51 ± 1.41 .

Table 3 revealed an improvement of mothers' knowledge regarding all aspects of care of their neonates before and after implementation of instructional guidelines ($T=9.602$), where (62%) of them reported exclusive breastfeeding after implementation of instructional guidelines compared with 26% before implementation. 79% of the studied mothers ensured their neonates were kept warm after implementation of instructional guidelines compared with 39% before implementation. Regarding skin care (69%) of studied mothers reported skin care after implementation of the instructional guidelines, compared with 58% of them reported poor knowledge after implementation of the instructional guidelines.

The percentage of studied mothers who knew care of the umbilical cord was 89% after implementation of the instructional guidelines, whereas only 23% of them did not know.

Table 4 showed that, only 8% of the studied mothers did not exclusively breast fed their neonates after implementation of the instructional guidelines compared with 54% before implementation of the instructional guidelines.

Table 5 illustrated that there are observed improvement in mothers' care practice regarding all aspects of for kept their neonates warm practice after implementation of nursing instructional guidelines (paired $t=3.403$), where the majority of the studied mothers (72%) provided skin to skin care after implementation of instructional guidelines.

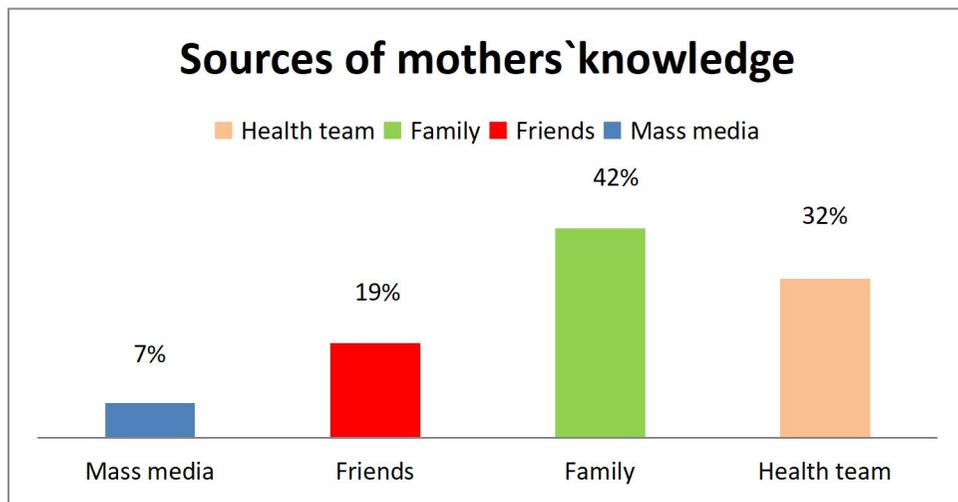
Table 6 showed that hands washing before handling the baby, diaper change, and bathing the baby were satisfactorily practiced by 49, 50, and 59% of studied mothers after implementation of the instructional guidelines.

Concerning mothers' reported cord care practice, **Table 7** revealed that the 82% and 83% of the studied mothers did not clean the base around cord and clean the cord, before the instructional guidelines compared with 21% and 44%, respectively, after the implementation of the instructional guidelines. There were statistical significant differences ($t=9.35$).

From **Table 8**, it is cleared that there was a statistically significant difference in mothers' reported care practices of their neonates before and after implementation of the instructional guidelines ($P=14.67$), where, 77%, 61%, 58%, and 77% had reported poor practices regarding breastfeeding, kept warm practice, skin care practice, and cord care practices, respectively, compared with 38, 31, 21, and 11%, respectively, after implementation of the instructional guidelines.

Table 1: Distribution of the studied mothers regarding to their demographic characteristics (n=150)

Demographic Characteristics	No	%
Mothers' age in years Mean \pm SD	25.9 \pm 6.4	
Education level of mothers		
-not educated	60	40.0
-read and write	19	13.0
-Diploma	45	30.0
- University	26	17.0
Residence		
Urban	88	59
Rural	62	41
Working status		
Working	57	38
Not working	93	62
Types of delivery		
Normal delivery	98	65.0
Cesarean section	52	35.0

Figure 1: Distribution of the studied mothers regarding to their source of information (n=150)**Table 2:** Distribution of the studied neonates concerning to their demographic characteristics (n=150)

Items	No	%
Gender of newborns		
Male	118	79.0
Female	32	21.0
Birth weight		
<2.000	9	6
2.000<3.000	45	30
3.000<4.000	73	49
>4.000	23	15
Gestational age (in weeks)	38.51 \pm 1.41	

Table 3: Mothers' knowledge regarding care of their neonates before and after implementation of instructional guidelines (n=150)

Mothers' knowledge	Pre				Post				t-test	P-value
	Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory		
Breastfeeding	39	26	111	74	93	62	57	38	9.602*	0.00
Kept warm	58	39	92	61	118	79	32	21		
Skin care	63	42	87	58	103	69	47	31		
Cord care	34	23	116	77	133	89	17	11		

Table 4: Distribution of the studied mothers according to their reported breastfeeding practices for their neonates before and after implementation of instructional guidelines (n=150)

Breastfeeding practices	Pre				Post				t-test	P-value
	Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory		
Colostrum feeding	69	46	81	54	138	92	12	8	5.42	0.00
Exclusive breastfeeding	73	49	77	51	133	89	17	11		

Table 5: Distribution of the studied mothers according to their reported practices for kept their neonates warm before and after implementation of instructional guidelines (n=150)

Kept neonate warm	Pre				Post				t-test	P-value
	Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory		
Skin-to-skin contact	0	0	150	100	108	72	42	28	3.403*	0.00
Dried/warped baby	72	48	78	52	135	90	15	10		

Table 6: Distribution of the studied mothers according to their reported skin care practices for their neonates before and after implementation of instructional guidelines (n=150)

Skin care	Pre				Post				t-test	P-value
	Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory		
Hand Washing before handling the baby	13	9	137	91	73	49	77	51	4.45*	0.00
Diaper change	27	18	123	82	75	50	75	50		
Bathing the baby	57	38	93	62	88	59	62	41		

Table 7: Distribution of the studied mothers according to their reported cord care practices for their neonates before and after implementation of instructional guidelines (n=150)

Cord care	Pre				Post				t-test	P-value
	Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory		
Perform cord care in correct time	34	23	116	77	133	89	17	11	9.35*	0.00
Use alcohol 70% for cord care	57	38	93	62	100	67	50	33		
Clean the around cord	27	18	123	82	118	79	32	21		
Clean the cord	26	17	124	83	84	56	66	44		

Table 8: Mothers' reported practices regarding care of their neonates before and after implementation of instructional guidelines (n=150)

Mothers' reported practices	Pre				Post				t-test	P-value
	Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory		
Breastfeeding practice	34	23	116	77	93	62	57	38	14.76	0.00
Kept warm practice	57	38	93	62	118	79	32	21		
Skin care practice	48	32	102	68	103	69	47	31		
Cord care practice	28	19	122	81	133	89	17	11		

Discussion:

The present study was conducted to evaluate the effect of instructional guidelines on mothers' knowledge and practice regarding neonatal care. Concerning the characteristics of the studied mothers, the results of the current study indicated that the mean of age of the studied mothers was 25.9 ± 6.4 years, less than half of them were not educated, more than half of them were living in urban areas, and about two thirds were not working. These findings were in the same line with the findings of **Madhu et al. (2017)**, who conducted study about breastfeeding practices and newborn care in rural areas in Indian and found that the majority of the mothers were between the ages of 21 and 25 years old. More than half of the mothers were illiterate, and the majority of the mothers were housewives and more than three quarters of mothers were not employed were.

Also, the findings of the study were similar to the findings of **Hadush et al. (2016)**, who conducted a study to assess knowledge and practice of neonatal care among 290 postnatal mothers attending Ayder and Mekelle Hospital in Mekelle, Tigray, Ethiopia, and reported that, the mean age of studied mothers was 27.04 ± 5.9 years.

This result of the present study revealed that that the main source of information for mothers was their family, followed by health care team. From the researchers' point of view, this is attributed to that mothers feel comfortable with their relatives.

These results were supported by the study findings conducted by **Aziz & Lee (2014)**, titled with "Malaysian primipara knowledge and practice on newborn care during the postnatal period" and observed that the participants were seek information from their family, friends, and health professionals. In contrast, **Fathie et al. (2017)**, who assessed knowledge, attitude, practice, and problem of postnatal mothers related to their health care and breastfeeding, and stated that majority of the mothers depended on media as a primary source of information during pregnancy.

The findings of the current study revealed an improvement of mothers' knowledge regarding all aspects of care of their neonates

before and after implementation of instructional guidelines ($t=9.602$). This reflected the positive effect of instructional guidelines that the mothers introduced regarding care of their neonates

The results of the present study indicated that there was observed improvement in mothers' reported practice regarding breastfeeding before and after implementation of the instructional guidelines. This might be owing to that successful breastfeeding practices done by the researchers and attributed to the good efforts made by the health services in MCH centers for educating mothers. These findings were consistent with the findings of **Senarath et al. (2016)**, who studied the effect of a hospital-based intervention in Sri Lanka on newborn care practices, and they reported that most of participants in the preintervention and post intervention samples of newborns, respectively, were exclusively breastfed at 28 days of life.

In the light of the current study findings, it was observed that most studied mothers improved their practice regarding all aspects of kept neonates' warm practices after implementation of the instructional guidelines. These findings are in the same line with the findings of **Aziz & Lee (2014)**, who found that about three quarters of the studied mothers improved their thermal control practices during the postnatal period.

Concerning mothers' skin care practice, the results of the current study indicated that majority of studied mothers did not wash their hands and did not change diaper and clothes before implementation of the instructional guidelines. This may be attributed to the fact that changing the knowledge is the milestone for practice change. These results are in contrast to the results of **Darmstadt et al. (2018)**, who conducted a study about neonatal home care practices, in rural Egypt (Fayoum, Aswan, and Luxor) during the first week of life and mentioned that less than ten percent of mothers washed their hands after diaper changes or before feedings.

Concerning mothers' reported cord care practice, the findings revealed that the majority of the studied mothers did not clean the base around cord and clean the cord, before the

instructional guidelines compared with less than one quarter, after the implementation of the instructional guidelines. This may reflect the importance of instructional guidelines for improving neonatal cord care. These findings are similar to the findings of **Mersha et al. (2018)** who studied essential newborn care practice and its predictors among mother who delivered within the past 6 months in Chench District, Southern Ethiopia, and they reported that more than half of neonates received safe cord care.

These findings of the current study that, there was a statistically significant difference in mothers' reported care practices of their neonates before and after implementation of the instructional guidelines ($P=14.67$). This indicated the success of the instructional guidelines.

The results of the present study, also, are agree with **Abd El-Sattar, (2021)** who studied "Effectiveness of an Instructional Teaching Program on the Knowledge of Postnatal Mothers regarding Newborn Care" and concluded that the implementation of intervention sessions regarding newly mothers' home care practices for their newborns in slums areas in Cairo and found that the newly mothers' knowledge and reported practices had improved.

The findings of the study, is similar to **Kanchan et al., (2013)** who concluded that the administered a teaching program was effective method to improve the knowledge of postnatal mothers regarding to their newborns care.

The results are in the same line with **Narila et al., (2017)** who studied "Changing Knowledge and Practices of Mothers on Newborn Care through Mother Class" and found that mother class has significantly improved mother's knowledge and practice on newborn care.

Conclusion:

Based on the results of the present study, it was concluded that, there was an improvement of mothers' knowledge regarding all aspects of care of their neonates before and after implementation of instructional guidelines ($T=9.602$). There was a statistically significant difference and improvement in mothers'

reported care practices of their neonates before and after implementation of the instructional guidelines ($P=14.67$). The implementation of instructional guidelines regarding mothers' care for their neonates had improved the mothers' knowledge and their reported practices. Therefore, the results of the current study comply with the research hypothesis.

Recommendations:

Based upon the results of the current study, the following recommendations are suggested:

- Instructional guidelines regarding neonatal care should be educated to mothers during antenatal period.
- Replication of this study with a larger sample of different areas with longitudinal follow-up is recommended, so that the results could be generalized.
- Further studies should be conducted on different aspects regarding mothers' care practices for their newborn babies.

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