

ANNUAL-INTERNATIONAL CONFERENCE

PROCEEDINGS

24 - 25 July 2017, Singapore

5th

Worldwide Nursing Conference
(WNC 2017)

PUBLISHED AND ORGANIZED BY
GLOBAL SCIENCE & TECHNOLOGY FORUM (GSTF)



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A Descriptive Study on Knowledge and Attitudes Regarding Neonatal Care And Associated Factors Among Mothers Attending Antenatal Clinics In A Teaching Hospital, Sri Lanka

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Abstract

Introduction: Neonatal death is a serious health problem, especially in developing countries. Knowledge and attitudes on neonatal care among mothers are very important to reduce the neonatal mortality. It is evident that number of factors such as socio-demographics, educational level of the mothers, monthly family income is associated with antenatal mother's knowledge and attitudes on neonatal care. However, there are not enough data regarding the level of knowledge, attitudes and associated factors on neonatal care among mothers in Sri Lanka. **Objective:** To determine the level of knowledge, attitudes on neonatal care and associated factors among mothers attending antenatal clinics at a Teaching hospital.

Design & methods: A descriptive cross-sectional design was conducted among antenatal mothers (n=377) attending antenatal clinics at a teaching hospital in Sri Lanka. A pre-tested, an interviewer administered questionnaire was used to collect data. Ethical approval was obtained prior to the data collection.

Results: Findings of the study revealed that more than half of the subjects had inadequate knowledge level and majority of them had favorable attitudes towards the neonatal care. Source of information on neonatal care was significantly associated with poor knowledge level ($p<0.05$) and moderate attitude level ($p<0.05$).

Conclusions: Nearly half of the subjects had inadequate level of knowledge regarding neonatal care; hence there is an urgent need of health education programs on neonatal care for antenatal mothers in Sri Lanka.

Keywords: Knowledge, Attitudes Neonatal care, Antenatal mothers, Sri Lanka

I. INTRODUCTION

Motherhood is one of the greatest blessings in women's life. Becoming a mother changes her heart, thoughts, and actions [1]. After having changes and challenges experienced during the 9 months, mothers' happiness is doubled when she hold her baby in her arms. During the neonatal period, different changes taking place in the neonate's physical, emotional and cognitive development in every day. It will be a new challenge for a mother. The basic needs of a neonate are consist of warmth, breast feeding and protection from infection, stimulation, safety, and love [1]. Neonatal care is an effective way to meet the baby's needs. The care of the neonate in the family is mainly governed by the knowledge of the mother. The care that a neonate receives in the initial weeks is vital factor for survival and future development of the neonate [2]. According to the research findings, neonatal death is a serious national health problem, especially in developing countries [1]. Neonatal mortality remains high, despite a declining proportion of deaths among children less than five years of age [3]. Every year, nearly 40% of all deaths in children under-five are among newborn infants and majority of these deaths occur in the first week of life [3], 130 million babies born every year and about 4 million die in the first 4 weeks of their life. Almost all of these neonatal deaths occurred in low and middle income countries with the highest rates occurring in Sub-Saharan Africa [4]. Each year in India, over one million neonates die before they complete their first month of life [1].

Number of studies was conducted on mother's knowledge and attitudes regarding neonatal care. For instance, a study was conducted in India showed that mother's knowledge and attitudes on neonatal care play a crucial role for safety and health of a neonate [1]. A Cohort study conducted among 30 postnatal mothers in India to assess the knowledge of postnatal mothers regarding neonatal care and study findings revealed that neonate's most frequent caretaker is their own mothers and mothers' knowledge and practices that shapes the future of the neonates [5]. In India neonatal care among 100 postnatal mothers showed that 65% postnatal mothers had moderate knowledge regarding neonatal care, 22% postnatal mothers had inadequate knowledge on neonatal care and only 13% of them had adequate knowledge regarding neonatal care [6]. Another study conducted to assess knowledge, practices, and attitudes of neonatal care among primigravida mothers in Karanataka [2]. The study findings showed that 56% of primigravida mothers had satisfactory attitude on neonatal care, 20% of them had

adequate attitude on neonatal and 24 % of them had inadequate attitude regarding neonatal care [2]. Moreover, number of socio demographic factors such as age, educational level, and monthly family income associated with antenatal mother's knowledge and attitudes on neonatal care. For instance, a study conducted in India to determine neonatal care among postnatal mothers revealed that poor knowledge among their participants regarding neonatal care. Furthermore, mothers' attitudes regarding neonatal care were associated with their age, educational level and source of information [6]. A cross-sectional conducted study in Iran to assess knowledge on neonatal care among postnatal mothers and their study showed that, urban mothers with less than 24 year of age, with 2 or 3 children and who had higher level of education had high knowledge level regarding neonatal care [7].

Neonatal care among mothers in Sri Lankan context

In Sri Lanka, majority of deaths among neonates are likely to occur at birth or during the first week after birth [8]. Sri Lankan Neonatal Mortality Rate (NNMR) for 2008 was 6.2 per 1000 live birth [8]. In 2008, Kurunegala and Vavunia districts recorded the highest NNMR of 12.0 and 11.2 respectively [9]. A study conducted among mothers to assess mother's knowledge on neonatal care and factors that associated with poor knowledge on neonatal care in five hospitals in the Puttalam district [10]. Their study findings revealed that first-time mothers, unemployed mothers and those with delayed antenatal booking visits were more likely to have poor knowledge. Furthermore mothers had a satisfactory level of knowledge about breast feeding and recognition of danger signs, but knowledge about care of the umbilical cord among their mothers was poor. In addition, the researchers concluded that the knowledge and attitudes on neonatal care among antenatal mothers are important to know in order to provide better neonatal care. Researchers recommended that maternal education programmes should place more emphasis on first-time mothers, unemployed mothers and those with delayed booking visits [10]. However, there are limited data available on this phenomenon in Sri Lanka, especially concerning the attitudes towards the neonatal care among antenatal mothers and its associated factors.

II. AIM & DESIGN

A. Aim

The study aimed to determine the level of knowledge, attitudes and associated factors on neonatal care among mothers attend to antenatal clinics at Colombo South Teaching Hospital (CSTH).

B. Design, Setting & Sample

A descriptive cross-sectional study was used. The study was conducted at three antenatal clinics at CSTH, Sri Lanka. A systematically randomly selected 377 antenatal mothers (every 2nd mother was selected according to their order of attendance to the relevant clinic) who attended to antenatal clinics at CSTH during the study period were participated. Inclusion criteria for the subjects were: mothers who were willing to

participated and available during the study period. Mothers with high risk pregnancy and mentally disabled were excluded. A pre-tested an interviewer administered questionnaire was used to collect data. The questionnaire was developed by the researchers, based on extensive and intensive literature review. The questionnaire included three sections: Part A-Socio demographic data; Part B-structured items on knowledge about neonate care; Part C- rating scale to describe the attitudes on neonatal care. The data were analyzed for descriptive statistics (frequency and Chi square) by using Statistical Package for Social Sciences (SPSS) 16th version.

C. Data Collection & Data Analysis

Ethical approval was obtained from Ethics Review Committees of the Faculty of Medical Sciences, University of Sri Jayewardenepura, CSTH, and relevant authorities. All subjects were informed verbally and in writing about the study purpose and processes and their participation was voluntary. The study information sheet was reviewed with the subjects prior to the data collection and any question that potential participants had about the study was addressed. Written informed consent was obtained from all subjects and their privacy, confidentiality and rights were protected throughout.

A pre-tested interviewer administered questionnaire was used to collect data. The questionnaire was piloted with 20 mothers who are attended to the antenatal clinics and relevant modifications were done. Mothers who participated for the pilot test were not included in the study. Approximately thirty minutes were taken to fill the questionnaire. Data were collected during a convenient time for the subjects without any disturbance to the clinics activities. Before the data collection subjects were make comfortable and relaxed.

III RESULTS

Demographic characteristics of subjects are presented in Table 1. Out of 377 subjects, nearly half of them (160, 42.4%) belonged to the 28 – 34 age group and 144 (38.2%) belonged to the 20-27 age group. Most subjects (331, 87.8%) belonged to Buddhist religion and majority of them (356, 94.4%) were Sinhalese. Most of subjects (290, 76.9%) were in urban area and 252 (66.8%) had received education up to grade 12. Only 24 (6.4%) subjects had education up to graduate level and above. Three hundred six (81.2%) of them were mothers and only 26 (6.9%) were professionals. Most of them (327) had regular antenatal clinic visits, only few of them (50) had not regular antenatal clinic visits. Most of them (325, 86.2%) had received information about neonatal care from health professionals (e.g. doctors, nurses, midwives) and 45 (11.9%) of them mentioned that they had information from their elders and relatives.

Table 1
Demographic characteristics of subjects (n=377)

Characteristics	No of subjects	Percent age (%)
Age	Below 20 years	24 6.4
	20 – 27 years	144 38.2
	28 – 34 years	160 42.4
	35 years	20 5.3
	Above 35 years	29 7.7
	Below 20 years	24 6.4
Religion	Buddhist	331 87.8
	Hindu	05 1.3
	Christian	29 7.7
	Islam	11 2.9
	Others	01 0.3
Race	Sinhala	356 94.4
	Tamil	10 2.7
	Muslim	11 2.9
Living area	Rural area	87 23.1
	Urban area	290 76.9
Average monthly income (Rs)	<5001	01 0.3
	5001 – 10000	36 9.5
	10001 – 15000	80 21.2
	15001 – 20000	145 38.5
	> 20000	115 30.5
Education level	Grade 1 – 5	05 1.3
	Grade 6 – 11	84 22.3
	Grade 12 – 13	252 66.8
	Diploma	12 3.2
	Graduated or above	24 6.4
Occupation	Housewife	306 81.2
	Unskilled manual	03 0.3
	Technical & clerical	22 5.8
	Skilled manual	20 3
	Professionals	26 5
Marital status	Married	371 98.4
	Unmarried	05 1.3
	Widowed	01 0.3
Type of family	Nuclear family	202 53.6
	Extended family	175 46.4
Number of living	One child	152 40.3

children in family	Two children	67	17.8
	Three children	08	2.1
	Four or more than four children	03	0.8
No child		147	39.0
	Regular clinic visits	Yes	342 90.7
	No	35 9.3	
Main source of information regarding neonatal care includes	Health professional	325	86.2
	Elders and relatives	45	11.9
	Friends	03	0.8
	Mass media, T. V. Radio, Newspaper etc.	04	1.1

Knowledge on neonatal care among antenatal mothers

General information of the neonate

Out of 377 subjects, more than half of them (223, 59.2%) knew about average normal weight of a healthy neonate. Nevertheless, most of them did not know about hours that the healthy neonate sleeps per day. More than half of them (197, 52.3%) knew that average frequency that the healthy neonate urinates per day.

Physiological status of the neonate & breast feeding

Nearly half of the subjects (185, 49.1%) knew that the skin colour is blue if the neonate does not breathe immediately after birth. Only few of them knew that healthy neonate pass the urine for the first time within 24 - 48 hours after birth. Eighty four (22.3%) of subjects knew that healthy neonate pass the stool within 12 – 24 hours from birth for the first time. One hundred and sixteen subjects (30.8%) mentioned that black colour stool is passed by healthy breast fed neonate, but only 39 (10.3%) of them mentioned that its consistency is loose and golden yellow colour. Two hundred twenty two (58.9%) of subjects did not know presenting secretions in throat of the neonate may risk for aspiration pneumonia. Most antenatal mothers (292, 77.5%) recognized about breast feeding on demand and 310 (82.2%) of subjects reported, that breast feeding should be initiated within 30 minutes after delivery.

Cord care & personal hygiene

106 (28.1%) of subjects knew that umbilical cord will fall within 7 – 10 days from the birth. Majority of them (246, 65.3%) knew that reasons for regular observation of umbilical cord. Nearly more than half of subjects (52.3%) knew that the

water is most suitable to clean the neonate during first few days after birth. Two hundred thirty four (62.1%) of them were aware that healthy neonate should bath daily after week from birth. Nearly three quarter of subjects (282, 74.8%) knew that the areas which should be given more attention while bathing a healthy neonate.

Maintenance of body temperature & Immunization schedule

Only 122 (32.4%) of the subjects mentioned that healthy neonate can keep warmly by keeping the neonate in contact with the mother and covering with cotton clothes. Most of subjects (305, 80.9%) knew that BCG injection is given within 24 hours of birth. One hundred and fourteen of them (30.2%) mentioned that first dose of Oral Polio Vaccine (OPV) is given two months of birth. As shown in the Table 2 out of 377, 55.2% of subjects had inadequate knowledge level, 42.2% had satisfactory knowledge level and only 2.6% of them had adequate knowledge level regarding neonatal care

Table 2 level of Knowledge regarding neonatal care (n = 377)

Knowledge Level	Category	Frequency	(%)
Inadequate	<50%	208	55.2
Satisfactory	50% - 70%	159	42.2
Adequate	>70%	10	2.6

Associated factors for level of knowledge regarding neonatal care among antenatal mothers

Present study findings revealed that age (OR= 1.5, 95% CI= 1.0-2.3), average monthly income (OR = 2.3, 95% CI = 1.1-5.0), number of living children in family (OR = 2.5, 95% CI = 1.6-3.8) and main source of information on neonatal care (OR= 3.1, 95% CI = 1.5-6.1) were significantly associated with poor knowledge level regarding neonatal care (Table 3).

Table 3 Associated factors for the level of knowledge regarding neonatal care (n = 377)

Characteristics		Knowledge Level		OR	95% CI	P value
		Poor	Good			
*Age	≤27	103	65	1.5	1.0 - 2.3	0.03
	>27	105	104			
*Monthly income	≤10000	27	10	2.3	1.1 - 5.0	0.02
	>10000	181	159			
*Number of living	Primi mothers	101	46	2.5	1.6 - 3.8	0.00

children				3.8	0
Mothers who had a child/children	107	123			
*source of information regarding neonatal care	Other than health professionals	40	12	3.1	1.5 - 6.1
	Health professionals	168	157		

*(p<0.05)

Attitudes of antenatal mothers regarding neonatal care Breast milk & Hygiene

Present study revealed that, antenatal mothers had positive attitudes towards breast milk and all most all of them (99%) agreed that breast milk provides all nutrition to healthy neonate. Majority of them (365, 96.8%) agreed that colostrum includes more beneficence to neonate. Most subjects (361, 95.8%) believed that breast feeding is help to develop a bond between neonate and mother. Majority of them (360, 95.5%) agreed that breast milk is free of microorganisms and it will protect neonate from infections. A small proportion of mothers (36, 9.5%) had no idea whether breast feeding give benefits to both mother and neonate although the most of them (337, 89.4%) agreed for that. According to the present study findings 367 (97.4%) of subjects were able to recognize, hand washing is important factor before handling a neonate. Most of the subject had positive attitude towards cord care with slightly more than 87% agreed that an umbilical cord care is very important part of neonatal care. Sixty nine (18.3%) of them had not agreed to statement which said that, mother should clean the neonate from least contaminated to most contaminated site. Findings of the present study show that most of the antenatal mothers had positive attitudes towards the hygienic practices.

Clinic visits

Regarding clinic visits, most of the subjects (366, 97.1%) agreed to that, clinic visits during antenatal and postnatal period give more benefits to both mother and neonate. Three hundred twenty nine (87.3%) of them had positive attitude towards statement which said, "Regular clinic visit during postnatal period will directly affect for healthy neonate". Three hundred sixty eight of subjects (97.6%) had positive attitude towards the health education programmes in antenatal clinics. Findings of the present study show that majority of antenatal mothers had positive attitudes towards the clinic visits during antenatal and postnatal period. As shown in the table 4 majority of antenatal mothers (358, 95%) had favourable attitude level regarding neonatal care.

Table 4. Attitude level of subjects regarding neonatal care (n = 377)

Attitude Level	Category	Frequency	(%)
Unfavorable	<51%	-	-
Moderate	51% - 75%	19	5
Favorable	>75%	358	95

Associated factors for level of attitudes regarding neonatal care among antenatal mothers

Present study findings showed that, living area (OR = 3.2, 95% CI = 1.2-8.2) and main source of information (OR = 3.1, 95% CI = 1.1-8.6) were significantly associated with moderate attitudes level of antenatal mothers towards the neonatal care (Table 5).

Table 5 Associated factors for the level of attitude regarding neonatal care (n = 377)

Characteristics	Attitude Level		OR	95% CI	P	
	Mode rate	Favora ble				
*Living area	Rural area	9	78	3.2	1.2 - 8.2	0.01
	Urban area	10	280			
*source of information regarding neonatal care	Other than health professionals	6	46	3.1	1.1 - 8.6	0.02
	Health professionals	13	312			

*(p<0.05)

IV DISCUSSION

In the present study 55.2% of antenatal mothers had inadequate level of knowledge on neonatal care. Similarly a study done in Tamilnadu among postnatal mothers reported that 65% of postnatal mothers had moderate level of knowledge regarding neonatal care, 22% of them had inadequate knowledge level regarding neonatal care [6]. A study to assess the knowledge of neonatal care among postnatal mothers in Iran found that 8.2% of mothers had poor knowledge, 78.5% had moderate and 13.3% had good knowledge [7]. In the present study, less percentage of antenatal mothers had adequate knowledge level regarding neonatal care when compared with another studies [6],[7]. Perhaps it may be due to problems with effectiveness of health education programmes regarding neonatal care in the setting of the present study. This could possibly due to the present study was conducted in a busy Teaching Hospital in Colombo area with a large number of patients compared to hospital staff who often have a high workload.

In this study, more than 80% of antenatal mothers knew about breast feeding should be started within 30 minutes of birth and 77.5% of them knew about breast feeding on demand. Likewise, when considering the cord care only 28.1% antenatal mother knew, that umbilical cord will fall within 7 - 10 days, as same as 28.1% of them answered that "do not know". However, 65.3% of antenatal mothers correctly answered for reasons of regular observation of cord. More than half of them (53.8%) knew that powder, baby cream, colon should not be applied to umbilical cord and it should be kept clean by expose to the clean environment. This could possibly because of Sri Lankan population is more adherence to the medical advices when compared with other countries. Another study conducted to assess the mothers' knowledge on neonatal care as well as factors associated with poor knowledge on neonatal care among mothers in, Sri Lanka [10]. The findings showed that mothers had a satisfactory level of knowledge about breast feeding but, knowledge about care of umbilical cord was poor. These findings were somewhat similar to the results obtained in the present study.

In the current study it is found that only 32.4% of participants knew that neonate's body temperature can be maintained by keeping the neonate contact with mother besides covering with cotton clothes. That mean just about only one third of antenatal mother knew about correct way of thermal care. Another study conducted a study to examine the knowledge and practices in thermoregulation on neonates in Sri Lanka [11]. Study findings revealed that mothers had good knowledge on preventive method of both hypothermia and hyperthermia (56.6% and 60.6%) respectively.

In this study majority of the subjects (358, 95%) had favourable attitudes towards the neonatal care. A study among 100 postnatal mothers in Tamilnadu, revealed that most of the mothers had favourable attitudes towards the neonatal care and 39% of them had moderate attitudes [6]. The present study revealed that the attitudes level was somewhat, good when compared with knowledge level towards the neonatal care. Similarly, a study on knowledge, practices and attitudes of primigravida mothers on neonatal care in Karanataka also found that 56% of samples had satisfactory attitudes level, 24% inadequate and 20% adequate attitudes level regarding neonatal care [2].

In the present study, majority of the antenatal mothers had positive attitudes towards the breast milk with all most all of them (99.2%) agreed that breast milk provides all nutrition to healthy neonate. Likewise, most of the antenatal mothers had positive attitude toward the hygienic practices and clinic visits during antenatal and postnatal period. Similarly, a study conducted at Kenyatta national hospital and found that positive attitude was most consistently on only breast feeding and cord care [3]. However, a study in South India indicated that awareness and attitudes of postnatal mothers towards neonatal care was poor especially in those who belong to the lower socio-economic status [12].

There are number of demographic factors associated with knowledge on neonatal care among antenatal mothers. The present study found that age, average monthly income, number of living children in family and main source of information regarding neonatal care were significantly associated ($p < 0.05$) with poor knowledge level of antenatal mothers regarding neonatal care. Antenatal mothers' experiences may be changed with their age and number of living children in their family. Hence, this change may be affect for their knowledge level regarding neonatal care. As well as accuracy of the information on neonatal care was received by them may be depend on the source of information.

A study to assess mothers' knowledge on neonatal care and factors associated with poor knowledge among 446 mother-neonate pairs in Sri Lanka, revealed that first-time mothers, unemployed mothers and those with delayed antenatal booking visits were more likely to have poor knowledge [10]. However, findings of the present study did not reveal significant association between knowledge on neonatal care with occupation of the antenatal mothers, and their level of knowledge with antenatal clinic visits. A study to assess knowledge and practice on neonatal care among 30 postnatal mothers in India revealed that the education level of the mothers had significant association with the knowledge [5]. Nevertheless, in present study did not find that significant association between education level of the antenatal mothers and their knowledge regarding neonatal care.

Sharafi and Esmaeeli (2013) conducted another study among postnatal mothers in Iran to assess knowledge of neonatal care and revealed that urban mothers, less than 24 year of age, with 2 or 3 children and who had higher level of education had high knowledge level regarding neonatal care [7]. However, the present study findings did not show that significant association between level of knowledge on neonatal care and their living area. A study among primigravida mothers in Karanataka to assess the knowledge, practices and attitude on neonatal care showed that age, education, occupation, income and source of information was associated with knowledge of primigravida mothers on neonatal care [2]. Similarly in the present study also found that age, monthly income, source of information was significantly associated with their knowledge level regarding neonatal care.

In the present study found that, main source of information regarding neonatal care and living area were significantly associated ($p < 0.05$) with their moderate attitudes level regarding neonatal care. A study conducted in Karanataka revealed that primigravida mothers' age, their living area and source of information was significantly associated with their attitude regarding neonatal care [2]. The present study did not indicate significant association between attitudes of antenatal mothers regarding neonatal care and their age.

Relevance to clinical practice

In conclusion in this study nearly half of the antenatal mothers had inadequate level of knowledge regarding neonatal care. Therefore, there is an urgent need for promoting antenatal

mothers knowledge, attitude towards the neonatal care. It is imperative to provide comprehensive health education programs on neonatal care for antenatal mothers, and it might effective to reduce neonatal mortality in Sri Lanka. In addition, other studies can be conducted at different settings in Sri Lanka to identify level of knowledge and attitudes and associated factors on neonatal care among antenatal mothers.

Limitations of the study

The study was based on reported rather than observed knowledge and attitudes towards neonatal care. Therefore, there was a challenge that antenatal mothers may report what was expected of them but their actual knowledge and attitudes may be different. The study sample was limited due to available time and resources for data collection. This study was carried out among mothers in antenatal clinics at only one hospital in Sri Lanka; therefore, findings may not be generalized to the whole country.

Acknowledgements

The authors thank all participants for their time and commitment to this study. Furthermore authors wishes to express their gratitude for all health care members in antenatal clinics at Colombo South Teaching Hospital for their great support to conduct this study.

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WNC 2017

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Date: 24 - 25 July 2017
Venue: Singapore

Prof. Lorna Moxham
Editor-in-Chief, WNC

Prof. the Hon. Dr. Stephen Martin
Chairman, Board of Governors, GSTF

Dr. Anton Ravindran CEng (UK), FBCS
President, GSTF

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