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Research Article

Assessment of knowledge regarding new-born care among mothers in Kancheepuram district, Tamil Nadu

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ABSTRACT

Background: Educating mothers to create awareness about essential obstetric and neonatal care are the key steps in achieving the goals of reproductive and child health programme. In this study, we aimed to assess the level of knowledge regarding essential new born care among the mothers.
Methods: This community based cross sectional study was done in Kancheepuram district, using a sample size of 100 mothers arrived based on the expected number of pregnancies in the area. The participants were selected by simple random sampling and data collected regarding the knowledge on new-born care among the mothers, using a structured interview schedule.
Results: The study result showed that mean age of mothers was 25 years and mean weight of babies was about 3 kg. Regarding the education status, 67% studied up to 10th standard and 18% studied up to plus two levels. Majority of them got information on new born care from health workers (44%) and family members (36%). The level of adequate knowledge regarding new-born care was present only in 15%, feeding practices in 39%, various components of immunization in 8%, growth and development in 42% and about new-born illness in 33% of the mothers. The knowledge regarding new born care was found to have a significant association with the educational status of the mothers.
Conclusions: This study outcome shows the need for a better revamped awareness and education program coupled with effective health care delivery system to improve the level of knowledge among mothers on new born care, in achieving better health indicators as far as RCH services are concerned.

Keywords: New-born care, Knowledge assessment, Mother child protection card

INTRODUCTION

Primary health care is an integral component of health care delivery system of our country. It has been defined as "the essential health care made universally accessible to individuals and acceptable to them through their full participation and at a cost the community and country can afford".[1] One of the key elements of primary health care is maternal and child health. It has been emphasized through the concept of primary health care, that mother and child constitute a single unit. This concept has been followed while planning national health programs and policies on maternal and child care. It is pertinent to consider so, as both the groups are vulnerable to several physical, social and emotional issues and the preventive measures to tackle these problems are fairly similar for both the groups. Moreover, it has been established that welfare of women and children is a key determinant of the progress of a nation.

With a high focus on these aspects, the Government of India launched Reproductive and Child Health (RCH)

programme in the year 1997-98 by integrating child survival and safe motherhood programme with other reproductive health services. The programme has several components and over the years, it has undergone several changes and has been refined substantially. The key components of the programme include family planning, client approach to health care, child survival and safe motherhood, and prevention and management of reproductive tract infections, sexually transmitted diseases.[2] Recently this programme has been integrated with the national rural health mission, which strives to deliver all the major national health programmes under a single umbrella of primary health care. This has resulted in substantial reduction of maternal and infant mortality rates, the key indicators used in the evaluation of RCH programme.

The success of any programme has to begin with the participation of the members of the community. Similarly, the participation of women of reproductive age group is mandatory for the success of RCH programme. One important aspect of RCH services is the distribution and propagation of the 'Mother Child Protection' (MCP) card, which gives graphical presentation of information pertaining to antenatal and postnatal mother and infant care practices. The Mother and Child Protection Card has been developed as a tool for families to learn, understand and follow positive practices for achieving good health of pregnant women, young mothers and children. This MCP card is a strong medium of monitoring and delivering preventive and curative services of MCH care. The card not only serves as a monitoring tool, but also acts as an effective educational tool for the mothers and the family regarding MCH care.[3] The card has been in use all over the country in regional and vernacular language, culturally acceptable and self-explanatory.

Adequate knowledge and appropriate attitude of the women of reproductive age group is a single key tool to evaluate the reach of the MCP card. This is a prerequisite to achieve the goals and targets of the RCH programme. In this study, we aim to assess the knowledge level of postnatal women, on various aspects of postnatal care and care of the newborn based on the information provided through the MCP card.

METHODS

Study design

This is a population based cross sectional study done to assess the level of knowledge of newborn care among postnatal women in Kancheepuram district of Tamil Nadu.

Study area and study population

The study area and population comes under the field practice area of our medical college and hospital. The study population identified was the postnatal women residing in the study area at the time of the study period. All the women who had delivered within 6 weeks in the area were included in the study. This study was carried out during January-March 2014 in the area served by the training centers of our medical college. The population of the area is approximately 67130.

Sample size and sampling technique

This cross sectional study was carried out using the required sample of postnatal women, calculated based on the expected number of pregnancies present in the area. The expected number of pregnancies was calculated from the expected number of live births in a year in the area.[4] The sample size calculation was done based on the Sample Registration System [SRS] 2011 data, which gives the birth rate in Tamil Nadu as 16 per 1000 live births.[5]

The mid-year population of the study area being about 67130; the expected live births were estimated to be 1074 for the year. Adding 10% to account for pregnancy wastage, the expected pregnancies was calculated to be 1181. Therefore, the number of expected pregnancies in a single month was calculated to be 98 and the final sample size was rounded of to be 100. The list of postnatal women in the area was obtained from the registers of the local health centers, from which 100 women were selected by simple random sampling.

Data collection

The data collection was done by the study team using the interns who were undergoing training at the Health Training Centers. The study participants identified were visited in their house for data collection. The data collection tool comprised of a structured interview schedule prepared with reference to the mother-child protection card available in the primary health centers and anganwadi centers, which comprised of background information and knowledge regarding newborn care. The knowledge of care of newborns was assessed under five components- knowledge regarding newborn care, feeding practices, immunization, growth and development and newborn illness. For each of the component, the correct response to the question was given a score of '1' and any other response was given '0' score. The maximum score that could be obtained at the end of the interview was '11' and a score of above 50% was taken as adequate knowledge regarding antenatal care. The interview schedule was pre tested on a sample of 10 postnatal women prior to the main study.

Data analysis

Data collected were entered into Microsoft excel spread sheet and analyzed using SPSS version 17 software. Descriptive data tables were generated to elaborate the findings and appropriate statistical analysis was used to explain the results. The statistical analysis included

estimation of percentages regarding the knowledge level. Student "t" test was used to estimate the statistical significance between mean scores and knowledge regarding the newborn care.

Ethical clearance and support

The study was carried out after obtaining approval from the institutional ethical committee. The participants were briefed about the study and informed consent was obtained prior to the data collection. All materials, man power and other resources needed for conducting study were provided by Institution as part of logistics support.

RESULTS

This study was carried out to assess the level of knowledge among post natal mothers on five important factors like newborn care, feeding practices, immunization, growth and development and on important newborn illness. The results are as follows.

The mean age of the mothers was 25 years and the mean birth weight of the infants as told by the mothers was about 3 kg. Regarding the background characteristics of the participants, it was observed that 67% of participants were educated up to secondary level of education. Nearly 44% of participants obtained knowledge regarding child care from health workers while 36% obtained knowledge from family members. Around 57% of mothers came from nuclear family (Table 1).

Table 1: Background characteristics of study group.

Characteristic	Frequency (n=100)	Percentage
Educational status		
Never attended school	4	4
Primary (KG-5th std.)	4	4
Secondary (6th-10th std.)	67	67
PUC (11th-12th std.)	18	18
Graduate	7	7
Type of family		
Nuclear	57	57
Joint	43	43
Ability to read Tamil		
Yes	89	89
No	11	11
Source of information*		
Past experience	27	27
Health workers	44	44
Mother-child protection card/anganwadi centre	22	22
Media	0	0
Peers/neighbors	6	6
Family members	36	36

*Multiple responses: sum of frequencies will not total to 100

Regarding the knowledge on newborn care, it was observed that 45% of the mothers were unaware of the precautionary measures to be taken for a new born. Only about 30% of the mothers knew when to give the first bath for the infant. About, 55% of the participants said that fever and cold on touch were one of the important danger signs in a new born while 24% were unaware of the danger signs. Overall, only 15% of the participants scored above 50% with regards to knowledge on new born care (Table 2).

Table 2: Knowledge regarding general newborn care.

Characteristic	Frequency (n=100)	Percentage
Precautionary measures for new-born care*		
Do not know	45	45
Providing warmth	25	25
Breast feeding	39	39
No bath for 7 days	0	0
Umbilical cord kept dry	0	0
Kept away from sick	0	0
Check weight of child	0	0
First bath for new-born		
Correct (7th day after birth)	30	30
Wrong	64	64
Do not know	6	6
Danger signs in new-born*		
Do not know	24	24
Not feeding well	15	15
No cry/continuous crying	23	23
Yellow palms/soles	12	12
Fever/cold to touch	55	55
Diarrhoea/blood in stools	4	4
Convulsions/ unconsciousness	0	0

*Multiple responses: sum of frequencies will not total to 100

The level of knowledge regarding feeding practices showed that nearly 48% mothers knew that breast feeding should start with in 1 hour of child birth. But 64% of the participants were not aware of the duration of exclusive breastfeeding. All the participants had knowledge regarding the type of food used for complimentary feeding and 87% of the participants felt cereals were an ideal complimentary feed. In all, 39% of the participants scored more than 50% for knowledge regarding feeding practices (Table 3).

Regarding the mothers knowledge on immunization of their infant, 95% of the participants were aware of the need for immunization of their infant. Nearly 93% of them were completely immunized till date. Nevertheless, 76% of the participants were not aware of the names of the individual vaccines given for the newborn babies. Only 8% of the mothers had adequate knowledge on the different immunization component even though the immunization coverage was good (Table 4).

Table 3: Knowledge regarding feeding practices.

Characteristic	Frequency (n=100)	Percentage
Time of initiation of breastfeeding		
Correct (within 1 hour)	48	48
Wrong	49	49
Don't know	3	3
Duration of exclusive breastfeeding		
Correct (1st 6 months)	33	33
Wrong	64	64
Don't know	3	3
Food items used for complimentary feeding*		
Do not know	0	0
Cereals	87	87
Dal (Pulses)	36	36
Vegetables	26	26
Fruits	3	3
Cerelac/lactogen	36	36
Biscuits	5	5
Other healthy food options (egg, cow milk)	17	17

*Multiple responses: sum of frequencies will not total to 100

Table 4: Knowledge regarding immunization.

Characteristic	Frequency (n=100)	Percentage
Immunization status of the child		
Complete immunization till date	93	93
Not immunized	2	2
Don't know	5	5
Name of the vaccines/supplements*		
Do not know	76	76
BCG	18	18
DPT	12	12
OPV	9	9
Measles	5	5
Hepatitis B	2	2
Vitamin A	0	0

*Multiple responses: sum of frequencies will not total to 100

The participant's knowledge regarding growth and development was assessed with respect to the identification of the shape of normal growth curve. In this study, 58% of the participants were not aware of this shape and only 42% of the participants had adequate knowledge regarding correct interpretation of the normal growth curve (Table 5).

Mother's knowledge regarding important newborn illness revealed that fever, respiratory illness and diarrhoeal diseases were the commonly occurring newborn illness. Nearly 91% of the participants perceived that fever was an important illness of the newborn followed by respiratory and diarrhoeal diseases. Moreover, 22% of them did not know the home based management of diarrheal illness. Only 33% of the participants had average knowledge regarding important newborn illness (Table 6).

Table 5: Knowledge regarding growth and development.

Characteristic	Frequency (n=100)	Percentage
Ideal shape of normal growth curve		
Correct (Identification of the 1st curve in the questionnaire)	42	42
Do not know	58	58

Table 6: Knowledge on important new-born illness.

Characteristic	Frequency (n=100)	Percentage
Common new-born illnesses*		
Do not know	4	4
Fever	91	91
Diarrhoea	42	42
Respiratory infections	63	63
Others (Jaundice, polio)	18	18
Management of diarrhea at home*		
Do not know	22	22
Continue breast feeding	12	12
ORS	17	17
Extra fluids	13	13
Continue normal diet	15	15
Hospitalization	42	42

*Sum of the frequencies will not total to 100

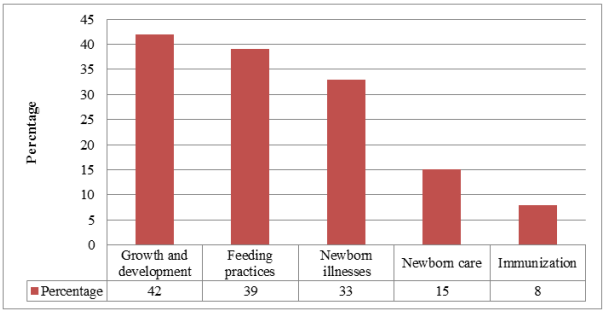

Figure 1: Adequate knowledge among mothers regarding new born care.

We tried to assess any association between the mean scores and the background characteristics by using Student t test. It was found that there was a significant difference in the mean scores of knowledge between women who were educated up to 10th standard compared to those who were educated beyond 10th standard ($t = 1.69$, $P < 0.05$). Other characteristics were found to be non-significant.

DISCUSSION

The national programmes on maternal and child health in Tamil Nadu have come a long way in achieving almost 100% institutional deliveries. Nevertheless, the awareness and knowledge among mothers regarding newborn care need to be enhanced in order to achieve better targets in infant and under-five mortality and morbidity. This study carried out among 100 postnatal women in our filed practice area of Kancheepuram district shows the existence of wide knowledge gap.

This study shows that 67% of the participants were educated up to secondary level of education. The level of education among women plays a major role in their understanding of the importance of correct ways of child rearing. In a study done by Castalino F et al., 46.7% of the participants were educated up to secondary level.[6] A Study conducted by Shikha Devi showed that variables like age, education and income were found to be significantly related with knowledge of postnatal mothers.[7]

This study has shown that only 15% of the mothers had adequate knowledge on newborn care. Among this, 55% of the participants were aware that fever and cold on touch were key danger signs of a newborn. A study done by Shally Awasthi et al. showed that 91.5% of the participants showed similar knowledge levels.[8] In this study, 39% of the participants had adequate knowledge on feeding practices. Knowledge on exclusive breastfeeding was present among 33% of the participants. Moreover, 48% knew about early initiation of breastfeeding. A study done by Shrestha et al. also showed similar findings.[9]

With regards to immunization, only 8% of the mothers had adequate knowledge on various aspects of immunization. Even though 93% of the babies were completely immunized as of date nearly 76% of the mothers were not aware of the names of the individual vaccines/supplements given for the newborn babies. This is an area of great concern since level of immunization coverage is good, but the awareness about which vaccine is given is poor. In an earlier study conducted in Kancheepuram district, it is found that only 71.9% of the children were fully immunized while 27.6% were partially immunized.[10]

The main reasons for the low immunization coverage were attributed to "lack of information about the immunization programme" by majority of mothers. Another study conducted in urban slums in Mumbai revealed that 80.95% of the children were completely immunized and suggested that regular IEC activities like group talks, role plays, posters, pamphlets, and competitions should be conducted in the community to ensure that immunization will become a "felt need" of the mothers in the community to increase the coverage as well as knowledge about the vaccines and supplements given to infants.[11]

This study shows only 42% of the participants had adequate knowledge regarding correct interpretation of the normal growth curve as had been represented in the MCP card. This knowledge is very important since the mother can easily identify whether the baby is growing normally or going in for under nutrition and when to seek medical care. A Study conducted in Ludhiana, Punjab showed that 53% of mothers had average knowledge score regarding growth & development of infants.[7]

About 33% of the participants had adequate knowledge on different important neonatal illness. Most of them identified fever, respiratory and diarrhoeal diseases as the important diseases to be looked for getting treated. In contrast, a study conducted in Mangalore found that (62%) of the mothers had good knowledge, 36% of the samples had average knowledge while 1% each of the samples had excellent and poor knowledge respectively regarding the newborn illness.[12]

As per the program, Acute Diarrhoeal Diseases (ADD) along with Acute Respiratory Illnesses (ARI) are considered important preventable child hood infections which can lead to high morbidity and mortality among them if not treated correctly and early. The propagation of the knowledge on syndromic approach to treat ARI and home based management of ADD has not reached the target group as this study shows that 22% of the mothers did not know the concept of home based management of diarrheal illness.

This study has shown that the educational status of the mothers were significantly associated with better knowledge scores ($P < 0.05$). Similar findings were observed by Castalino F et al.[6] ($P < 0.005$) and Sharafi et al. ($P < 0.005$).[13] Several studied have identified that higher levels of education and income among the mothers have a significant impact on the level of knowledge about danger signs and their health seeking behavior.[7]

This study result shows that the overall picture of the awareness and level of knowledge regarding the RCH services rendered has not sufficiently reached the target group. The service utilization particularly the antenatal care, institutional delivery and immunization coverage have improved to a highly significant level. But understanding of the very purpose of utilizing such services is limited and ignorance is still persisting among the target group. This is indicated by the low level of knowledge among mothers particularly regarding provision of essential new born care and various components and purpose of the immunization schedule (Figure 1).

Even though the female literacy levels in Tamil Nadu is about 74%, this study reveals that there is a wide gap in the knowledge level regarding post natal infant care

among the mothers in the study area. This indirectly reflects on the quality of health education measures imparted for antenatal and postnatal care among the target group. A recent study found that less than 70% of the health workers including anganwadi workers, ancillary nursing midwife, and other supervisors had enough knowledge required to provide health education to the antenatal and post natal mothers. [14] This knowledge gap among the health educators of the schemes calls for periodic supervision, monitoring and continuous medical education sessions/training to empower them to provide adequate knowledge and awareness to the antenatal/postnatal mothers.

CONCLUSION

A national health programme is incomplete without community participation and this holds good for reproductive and child health programme as well. Awareness on postnatal and early neonatal care is a fundamental prerequisite to effective community participation. This study has revealed the presence of huge knowledge gap and lacunae in this regard in spite of the fact that the RCH program is given top priority by the government. Despite the fact that Tamil Nadu records the highest number of institutional deliveries, the existing knowledge gap in key areas of postnatal and neonatal care will greatly affect the success of maternal and child care services. To tackle this scenario, it is essential to target the mothers at an earlier stage, i.e. during the early antenatal period as the beneficiaries are more receptive and sensitive to the issues. Therefore, an adequate and revamped awareness and education program coupled with effective health care delivery system will go a long way in achieving better health related indicators as far as reproductive and child health services are concerned.

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