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Factors associated with the knowledge about breastfeeding among antenatal and postnatal women in selected rural villages of Chengalpattu, Tamil Nadu: A community-based cross-sectional study

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Abstract:

BACKGROUND: Addressing good breastfeeding practices among antenatal and postnatal mothers is important as it helps in bringing about a positive change in the behavior, attitude, and practice with appropriate health education. Hence, this study was done to determine the awareness level of antenatal and postnatal mothers about the breastfeeding practices and benefits and identify the factors associated with it in rural Chengalpattu, Tamil Nadu, India.

MATERIALS AND METHODS: We conducted this community-based cross-sectional study among 377 antenatal and postnatal mothers in the selected rural villages of Chengalpattu between October 2019 and September 2020. Details regarding the sociodemographic characteristics and awareness/knowledge about the breastfeeding were collected using pretested semistructured questionnaire. Knowledge adequacy was summarized as proportion with 95% confidence interval (CI), and factors associated with knowledge were interpreted as adjusted prevalence ratio (aPR) with 95% CI using log-binomial regression.

RESULTS: About 19.6% (95% CI: 15.7%–24.0%) mothers had inadequate knowledge about breastfeeding. Women who were unemployed (aPR = 1.60; 95% CI: 1.02–2.51), belonging to the lower socioeconomic status (aPR = 2.62; 95% CI: 1.80–3.82), belonging to Muslim religion (aPR = 1.63; 95% CI: 1.14–2.35), and living in joint family (aPR = 1.58; 95% CI: 1.12–2.21) had significant higher risk of inadequate knowledge about breastfeeding practices compared to those who were employed, belonging to upper socioeconomic status, Hindu religion, and living in nuclear family.

CONCLUSION: We found that almost one-fifth of the antenatal and/or postnatal mothers had inadequate knowledge about the breastfeeding benefits and practices. Health education sessions are required to promote the awareness about breastfeeding during antenatal and postnatal check-ups.

Keywords:

Awareness, breastfeeding, postnatal care, prenatal care

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Introduction

Breast milk is the most affordable, accessible, and available resource for healthy mother and child and forms an integral part in the continuum of

care.^[1] Breastfeeding is beneficial for both the mother and child. Benefits for the child include the provision of required proteins and calories to the infants, support cognitive development, contain growth factors,

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antiinfective and antioxidant properties, and reduce the risk of noncommunicable diseases in future.^[2] Benefits to the mother include lactation amenorrhea (natural contraception); uterine involution; weight reduction; and reduction in the risk of osteoporosis, ovarian, and endometrial cancers.^[2] Yet, it is still one of the most neglected aspects in many parts of the world.

Breast feeding practices are attributed as the central part of 2030 agenda for Sustainable Development Goal (SDG) achievement. Almost 7 out of 17 SDGs can be achievable through proper breastfeeding practices.^[3] The World Health Organization has reported that every year around 2.4 million dies before the age of 5 years and almost two-third of this burden are associated with inappropriate infant feeding practices. Almost one-third of these deaths occur in low and low middle-income countries such as Nigeria and India.^[4] Hence, it is an important public health responsibility to ensure the implementation of proper breastfeeding practices such as exclusive breastfeeding, initiation of complementary feeding, and continued breastfeeding throughout the country.^[5]

Exclusive breastfeeding is defined as “giving baby only breast milk for the first 6 months without adding any additional drink including water or food.” Infants should receive complementary food only after the first 6 months, and the breastfeeding should be continued at least until 2 years of age.^[6,7] In addition, mother’s calorie and protein intake should be increased during lactation to cover the energy cost of breastfeeding (by about 10% if the woman is not physically active, but 20% or more if she is moderately or very active).^[8] Although all these recommendations sound easy, it is a herculean task for the mothers to remember, intend to take up, and practice the proper breastfeeding practices. Addressing good breastfeeding practices among antenatal and postnatal mothers is important as it helps in bringing about a positive change in the behavior, attitude, and practice at the primary level of prevention, with appropriate health education. Hence, it is essential for the mothers to know the appropriate breastfeeding practices and its benefits throughout their antenatal and postnatal period.

Similar studies were conducted in different parts of India and explored the awareness about breastfeeding practices and benefits.^[9-12] However, each of these studies is setting specific and the recommendations are applicable to that particular setting given the different demographic characteristics and access to health-care services. In addition, none of these studies have covered the hormonal benefits aspect of the breastfeeding, which we intend to study and also compare the awareness between antenatal and postnatal mothers to provide appropriate policy recommendations.^[9-12] Hence, this study was done with an objective of understanding the

pattern of knowledge about the breastfeeding practices and benefits and identify the factors associated with the awareness among the antenatal and postnatal women in rural villages of Chengalpattu, Tamil Nadu, India.

Materials and Methods

Study design and setting

This was conducted as a community-based cross-sectional study among the antenatal and postnatal mothers in the rural field practice area of SRM Medical College and Research Institute, Kattankulathur block, located in Chengalpattu district, Tamil Nadu, India. The study was conducted from October 2019 to September 2020 (1 year).

Study participants and sampling

The eligibility criteria for the participants were either the women in their antenatal period or postnatal period (had a live birth up to 6 months before the survey).

Sample size was calculated using the following formula:^[13]

$$N = 4pq/d^2$$

p = expected proportion of inadequate knowledge about breastfeeding

$$q = 1 - p$$

d = margin of error (absolute precision)

N = total sample size

Findings from the previous study were used to obtain the expected proportion of inadequate awareness related to breastfeeding practices which were 40%,^[14] with absolute precision (d) 5%, and confidence interval (CI) of 95%, and minimum sample size was estimated to be 384.

Line list of the antenatal and postnatal mothers was available in the rural health center. Simple random sampling using computer-generated random number tables was performed to select the participants from this line list.

Data collection tool and technique

Data collection was started after obtaining informed written consent from the eligible participants. Privacy was ensured during the interview of participants. Data were collected using a pretested semistructured questionnaire consisting of the following three sections:

Section-I

It consists of the sociodemographic details such as age, education, marital status, family type, occupation,

and socioeconomic status (as per modified BG Prasad classification 2019).

Section-II

It consists of questions related to breastfeeding practices such as breastfeeding during illness, additional calorie and protein intake, and ideal month for weaning.

Section-III

It consists of questions related to benefits related to breastfeeding such as mother and child bonding, hormonal benefits (lactational amenorrhea, involution of uterus, and promotion of lactation), immunity, and growth and development.

Sections II and III were combined and a total score ranging from 0 to 13 was given. The Bloom's cutoff points for knowledge assessment were used to grade the breastfeeding awareness.^[15-18] The cutoff points were as follows: good (80%–100% to 11–13 points), moderate (60%–80% to 8–10 points), and poor (59% or less – ≤7 points).

Statistical analysis

Data were entered using Microsoft Excel and analysis was performed using STATA version 14.2 (StataCorp, College Station, TX, USA). Descriptive statistics were mean and standard deviation or median and interquartile range (IQR) for continuous variables and proportions for categorical variables. The outcome variable for the purpose of analysis was stratified as "adequate/inadequate knowledge about breastfeeding" (by combining good and moderate grade as adequate knowledge and poor grade as inadequate knowledge). Awareness/knowledge about the breastfeeding was expressed as proportion with 95% CI. Chi-square test was performed to identify the factors associated with inadequate knowledge about breastfeeding. Variables with $P < 0.20$ were included in the multivariable model. Log-binomial regression was performed to identify the factors associated with the outcome variable after adjusting for potential confounders. Adjusted prevalence ratio (aPR) with 95% CI was reported. Variables with $P < 0.05$ were considered statistically significant.

Ethical considerations with code of ethics

Informed written consent was obtained from the study participants before entering into the study. The confidentiality and anonymity of the participant's information were also ensured before starting the interview.

Results

In total, 384 women were approached to participate in the study, out of which 377 women consented and

responded completed to the questionnaire (response rate = 98.2%) and they were included in the analysis. Sociodemographic details of the participants are provided in Table 1. The mean age of the participants was 24.9 (4.0) years. Majority (92.8%) belonged to 18–30-year age group; about one-fifth (20.4%) of the mothers had no formal education; more than half of the mothers (53%) were unemployed; majority (82.5%) belonged to Hindu religion; about 8.5% belonged to lower class of socioeconomic status as per modified BG Prasad classification; nearly three-fourth (71.1%) belonged to nuclear family; more than two-third (67.9%) were antenatal mothers, and rest were postnatal mothers.

Table 2 shows the awareness/knowledge about the breastfeeding benefits and practices among the study participants. We found that majority of the mothers were aware about the fact that breastfeeding is beneficial to both mother and baby (80.9%), beneficial in terms of immunity (89.7%), growth and development (90.4%), child to mother (90.2%), and mother to child bonding (82%). However, less than half of the women were aware about the hormonal benefits of breastfeeding such as involution of uterus (10.6%), lactation (42.7%), and natural contraception (43.8%). Awareness about

Table 1: Sociodemographic characteristics of the study participants (n=377)

Characteristics	Frequency (%)
Age category (years)	
18-30	350 (92.8)
>30	27 (7.2)
Educational qualification	
No formal education	77 (20.4)
Primary	99 (26.3)
Secondary	135 (35.8)
Higher	66 (17.5)
Occupation	
Employed	177 (46.9)
Unemployed	200 (53.1)
Socioeconomic status*	
Upper class	70 (18.6)
Upper middle class	86 (22.8)
Middle class	92 (24.4)
Lower middle class	97 (25.7)
Lower class	32 (8.5)
Family type	
Nuclear	268 (71.1)
Joint	109 (28.9)
Religion	
Hindu	311 (82.5)
Christian	29 (7.7)
Muslim	37 (9.8)
Antenatal/postnatal period	
Antenatal mothers	256 (67.9)
Postnatal mothers	121 (32.1)

*Modified BG Prasad classification 2019

Table 2: Awareness about the benefits and practices of breastfeeding among the antenatal and postnatal mothers in rural villages of Tamil Nadu (n=377)

Characteristics	Frequency (%)
Awareness about whom the benefits of breastfeeding are intended	
Benefit to both mother and child	305 (80.9)
Benefit only to the child	47 (12.5)
Benefit only to the mother	4 (1.1)
Do not know	21 (5.5)
Awareness about the benefits (hormonal, growth, and immunity) of breastfeeding	
Natural contraception	165 (43.8)
Involution of uterus	40 (10.6)
Increased lactation	161 (42.7)
Mother to child bonding	309 (82.0)
Child to mother bonding	340 (90.2)
Growth and development	341 (90.4)
Immunity	338 (89.7)
Awareness about the breastfeeding practices	
Additional calorie requirement	279 (74.0)
Additional protein requirement	212 (56.2)
Breastfeeding during illness	262 (69.5)
Weaning practices	287 (76.1)

breastfeeding practices such as additional calorie (74%) and protein requirement (56.2%), breastfeeding during illness (69.5%), and weaning practices (76.1%) was also found to be moderate in the study participants. The median (IQR) score for breastfeeding awareness was 10 (8–11). About 34% of the mothers had good knowledge, and 46.4% had moderate knowledge about the breastfeeding benefits and practices. The proportion of mothers with inadequate knowledge about breastfeeding was 19.6% (95% CI: 15.7%–24.0%).

Table 3 shows the factors associated with inadequate breastfeeding knowledge among antenatal and postnatal mothers. In univariable analysis, occupation, socioeconomic status, and religion showed a statistically significant association with inadequate knowledge of breastfeeding. However, age group, education, and family type were also included into the multivariable model as these variables had $P \leq 0.20$. In multivariable analysis, family type, occupation, socioeconomic status, and religion showed statistically significant association with breastfeeding knowledge. Women who were unemployed had 1.60 times higher risk of having inadequate breastfeeding knowledge (aPR = 1.60; 95% CI: 1.02–2.51) when compared to women who were employed. Women belonging to the lower socioeconomic status had 2.62 times higher risk of having inadequate breastfeeding knowledge (aPR = 2.62; 95% CI: 1.80–3.82) when compared to women who were in middle or upper class of socioeconomic status. Women belonging to Muslim religion had significantly higher risk of inadequate breastfeeding knowledge (aPR = 1.63; 95% CI: 1.14–2.35) when compared to women belonging

to Hindu religion. Women living in joint family had 1.58 times higher risk of having inadequate breastfeeding knowledge (aPR = 1.58; 95% CI: 1.12–2.21) when compared to women living in nuclear family.

Discussion

Awareness about breastfeeding practices and benefits

We conducted this community-based cross-sectional study to assess the level of awareness about breastfeeding and its determinants among the antenatal and postnatal mothers. We found that almost one-fifth of the antenatal and/or postnatal mothers had inadequate knowledge about the breastfeeding benefits and practices. This means that at least four in five mothers had good to moderate level of knowledge about the breastfeeding. Majority of the mothers had satisfactory level of knowledge about the fact that breastfeeding is beneficial to both mother and baby, provides immunity, and promotes growth and development of the child and promotes child to mother and mother to child bonding. This was in line with the previous studies conducted in other parts of the country such as Kerala,^[19] Punjab,^[20] Haryana,^[21] Uttarakhand,^[22] and Jammu^[23] as all these studies reported that mothers had satisfactory level of knowledge with respect to these domains.

Although the overall level of knowledge was found to be satisfactory, knowledge related to certain subsections such as hormonal benefits (involution of uterus – 10.6%, lactation – 42.7%, natural contraception – 43.8%), additional protein intake (56%), and breastfeeding during illness (69%) were found to be low. Previous studies conducted in other parts of India such as Kerala (66%),^[19] Haryana (62%),^[21] and Uttarakhand (76%)^[22] also revealed similar estimates for knowledge about breastfeeding during illness. Similarly, previous studies in India have also reported that mothers had insufficient knowledge with respect to additional protein intake during lactation period.^[21-23]

Factors associated with breastfeeding awareness

We also assessed the determinants of inadequate knowledge about the breastfeeding. We did not find any significant difference between antenatal and postnatal mothers. This indirectly indicates that the mothers in the study area are provided with sufficient knowledge about the breastfeeding benefits and practices right from the antenatal period by the health-care facilities in the study region. However, we found that mothers belonging to joint family had significantly higher risk of having inadequate knowledge about breastfeeding compared to mothers in nuclear family. This was in line with the previous studies conducted in India, where women in nuclear family had better knowledge and more likely to practice the good breastfeeding measures.^[10,24] This

Table 3: Factors associated with knowledge about breastfeeding practices and benefits among antenatal and postnatal mothers in rural Tamil Nadu (n=377)

Characteristics	Total (n)	Inadequate breastfeeding knowledge, n (%)	Unadjusted PR (95% CI)	aPR (95% CI)	Adjusted P
Age category (years)					
18-30	350	73 (20.9)	5.63 (0.81-38.94)	4.93 (0.80-30.11)	0.08
>30	27	1 (3.7)	Reference	Reference	
Educational status					
No formal education/primary	176	28 (15.9)	Reference	Reference	0.18
Secondary/higher	201	46 (22.9)	1.44 (0.94-2.20)	1.32 (0.88-2.00)	
Occupation					
Employed	177	23 (13.0)	Reference	Reference	
Unemployed	200	51 (25.5)	1.96 (1.25-3.07) [#]	1.60 (1.02-2.51)	0.04 [#]
Socioeconomic status					
Lower class	32	16 (50.0)	2.97 (1.96-4.52) [#]	2.62 (1.80-3.82)	<0.001 [#]
Others	345	58 (16.8)	Reference	Reference	
Family type					
Nuclear	268	46 (17.2)	Reference	Reference	
Joint	109	28 (25.7)	1.50 (0.99-2.26)	1.58 (1.12-2.21)	0.009 [#]
Religion					
Hindu	311	54 (17.4)	Reference	Reference	
Christian	29	5 (17.2)	0.99 (0.43-2.28)	1.30 (0.90-1.86)	0.16
Muslim	37	15 (40.5)	2.33 (1.47-3.70) [#]	1.63 (1.13-2.35)	0.008 [#]
Antenatal/postnatal period					
Antenatal mothers	256	54 (21.1)	1.27 (0.80-2.03)	Not included in the model	
Postnatal mothers	121	20 (16.5)	Reference		

[#]P value statistically significant (<0.05). ¹Age category, educational status, occupation, religion, family type, and socioeconomic status were included into the model as the P value in univariate analysis was <0.20. PR=Prevalence ratio, aPR=Adjusted PR, CI=Confidence interval

was attributed to the fact that some family inhibitions faced by the mothers living in joint family during their antenatal and postnatal period.

We also found that women who were unemployed and living in poor socioeconomic status had significantly lower awareness about the breastfeeding benefits and practices. This was also in line with the previous studies assessing the knowledge about breastfeeding in Indian setting.^[10,19,21,24,25] This can be attributed to the fact that mothers in higher socioeconomic status group have enhanced decision-making power in their families and society. In addition, employment status of the women promotes positive attitude toward health care-seeking behavior leading to more exposure to relevant knowledge about their health status. Although our study found Muslim religion as significant determinant of inadequate knowledge about breastfeeding, previous studies conducted in other parts of India have provided contrasting results that Muslims have better knowledge and practice related to breastfeeding or found no significant difference between the religions.^[10,25,26] Hence, the reason for such finding in our study should be further explored qualitatively.

Limitation and recommendation

Our study had certain limitations. Our questionnaire has focused primarily on the benefits of breastfeeding,

and important questions related to breastfeeding practices such as time of initiation and duration of exclusive breastfeeding, prelacteal feeds, and position of breastfeeding were not asked. We also did not investigate the attitude and practice part and focused only on the knowledge component of breastfeeding.

Implications for public health practice and future research

In spite of these limitations, our study provides useful information about the breastfeeding awareness among the rural antenatal and postnatal mothers in Southern part of India. Further qualitative research exploring the reasons for such inadequate knowledge about certain subsections of the breastfeeding should be done. Exploring these reasons have helped in developing an effective interventional package for promoting breastfeeding knowledge, attitude, and practices.^[27] Hence, application of this knowledge can be used to develop a specific intervention package in our setting, thereby promoting the breastfeeding practices in the rural areas.

Conclusion

We found that almost one-fifth of the antenatal and/or postnatal mothers had inadequate knowledge about the breastfeeding benefits and practices. We

found that mothers belonging to joint family, Muslim religion, unemployed, and living in poor socioeconomic status were significantly associated with inadequate breastfeeding knowledge. Health education sessions are required to promote the awareness about breastfeeding during antenatal and postnatal checkups.

Ethical considerations with code of ethics

Informed written consent was obtained from the study participants before entering into the study. The confidentiality and anonymity of the participant's information were also ensured before starting the interview.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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