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Practice of respiratory hygiene and attitude of Covid-19 positive mothers on breastfeeding at a tertiary care Centre, South India: A descriptive cross- sectional Study

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Abstract

Background: Breastfeeding (BF) is the cornerstone of infant and young child survival, nutrition, developmentand maternal health. Covid-19 pandemic has led to fears, anxiety and psychological stress among postnatalmothersthat canpotentially affecttheirpracticesandattitude towardsBF

Objectives: To assess the knowledge, practices and attitude towards BF and the knowledge and practice towardsrespiratoryhygieneamongCovid-19positive postnatal mothers.

Method: A descriptive cross-sectional study was done on Covid-19 positive postnatal mothers admitted toMcGannDistrictTeachingHospital,Shimoga,India,betweenApril2020andSeptember2020.Apre-testedsemi-structured questionnaire was used for data collection. Iowa Infant Feeding Attitude Scale (IIFAS) was used toassessthe attitude towardsBF.

Results: Among study participants, 90.7% were aware of the duration of exclusive breast feeding(EBF).Practiceof EBF and initiation of complementary feeding at 6 months was done by 73.3% and 84% respectively; 74.7%,84.7%and84.7%ofmothershadknowledgeofcontinued BFtilltheageof2years,wearingmaskduring BFandwashing hands with soap before and after touching the baby respectively. Respiratory hygiene was practiced by58%;100%ofmothersagreedBFwaslessexpensivethanformulafeeding;34.7%mothersopinedthatnutritionalbenefit of the milk last only until the baby is weaned from breast milk. Statistically significant difference (p=0.008) was noted between low income and better attitude score. Average score of IIFAS (60.08±5.76) lay in therangeof neutral attitude towardsBF.

Conclusions: The present study demonstrated the neutral attitude towards BF among Covid-19 positive postnatalmothers. It also demonstrated a gap between knowledge and practice of good respiratory hygiene.

(Keywords :Respiratory hygiene,Attitude,IowaInfantFeeding Attitude Scale, Covid-19,Breastfeeding)

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INTRODUCTION

The 21st century has seenthe worst global health crisis for the mankind caused by SARS-CoV-2 in the form of COVID-19[1]. It has caused socioeconomic shocks, affected quality of diet and nutrition causing malnutrition in children worldwide. Malnutrition can aggravate the effects of COVID-19 in mothers and children[2].Breastfeeding and infant nutrition is to be considered as public health issue as it is documented to have short and long term medical and neurodevelopmental advantages[3].Nearly 3 out of 5 babies are not put on breastfeeding in first hour of life and only about 44% of infants aged 0–6 months worldwide were exclusively breastfed over the period of 2015-2020[4, 5].If all the children of age 0-23 are optimally fed, approximately 820,000 lives of children under the age of 5 years could be saved every year[4, 6]. Intelligence quotient and school attendance are improved by breastfeeding which is associated with higher income in adult life[4-6.]

Breastfeeding is influenced by social, cultural and economic factors and maternal infant feeding attitude is a stronger independent predictor of breastfeeding[7]. The IIFAS (Iowa Infant Feeding Attitude Scale) was developed in the United States by De La Mora and Russell to assess women's attitudes toward breastfeeding. The IIFAS has 17 attitude items rated on 5 point Likert scale. The rangeof total score is 17 to 85, higher scores indicating a more positive attitude towards breastfeeding. It is reliable and valid measure to evaluate the mothers' attitude regarding infant feeding and choices of feeding methods[8]. To our knowledge, there are no reported studies on maternal attitude towards breastfeeding among covid positive postnatal mothers using IIFAS from India. The research in this field is crucial to develop strategies for improving breastfeeding rates, raising awareness about respiratory hygiene during breastfeeding among covid positive mothers and reducing the infant mortality and morbidity especially in developing countries with limited resources settings. The aim of this study was to assess the knowledge and practice towards respiratory hygiene and breastfeeding among COVID-19 positive postnatal mothers and to assess the attitude towards breastfeeding among COVID-19 positive postnatal mothers.

MATERIALS AND METHODS

This descriptive cross sectional study was conducted on 150 covid positive postnatal mothers admitted to McGann Teaching District Hospital which is attached to Shimoga Institute of Medical Sciences, shimoga, India between the months of April 2020 and September 2020. Post natal covid positive mothers delivered at McGann teaching district hospital between April 2020 and September 2020 with healthy infants aged 6 months, born between 37 and 42 gestational age and without major birth defects such as congenital heart disease, cleft lip, and cleftpalate were included in the study. Mothers with preterm babies, multiple gestations and those not agreed to participate were excluded. Informed consent was obtained from the mothers and they were given an explanation regarding the need for this study. A semi structured questionnaire was used to collect the data. This questionnaire had 3 sections: section A had socio demographic characteristics of study participants. The knowledge and practice of mothers regarding breastfeeding and respiratory hygiene was assessed in section B. Third part is IIFAS questionnaire, to assess the attitude of mothers towards breastfeeding.

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Section A: This section elicits socio demographic information of the participants: age, education, occupation, type of family and per capita income.

Section B: This section elicits the knowledge and practice of the mothers towards breast feeding and knowledge and practice towards respiratory hygiene while breastfeeding that includes the 3 Ws: "Wear a mask during feeding", "Wash hands with soap before and after touching the baby "and "Wipe and disinfect the surfaces regularly"[9, 10].

Section C: The Iowa Infant Feeding Attitude Scale (IIFAS) was used to assess attitude towards breastfeeding. The scale has 17 attitude items to determine the level of agreement to each question. A 5-point Likert scale, from strongly disagree to strongly agree was applied to all the questions. Approximately half of the questions were negatively worded (i.e. 1, 2,4,6,8,10,11,14, and 17). Total IIFAS scores were grouped into three groups (1) positive to breastfeeding (70-85), (2) neutral (49-69), and positive to formula feeding (17-48). The Iowa Infant Feeding Attitudes Scale (IIFAS) is a valid and reliable measure of attitude towards breastfeeding[11-13].

Data collection procedure

An informed consent was obtained from the mothers who were willing to participate in the study. All the mothers were given an explanation regarding purpose of the study. Data was collected by medical records and telephonic interview in a private room at the hospital. It took approximately 30 minutes to complete the structured questionnaire. Though, it was not part of the study, we educated the mothers about the importance of EBF, continuing breast feeding upto 2 years, regarding complimentary feeding and respiratory hygiene while breastfeeding.

Ethical issues: The ethical committee clearance was obtained from Institutional Ethics Committee, Shimoga Institute of Medical Sciences, Shimoga (SIMS/IEC/516/2020-21).

Statistical analysis

The collected data was tabulated in Microsoft excel sheet.Responses of the negatively worded items were reversed before data analysis. Statistical analysis was performed by using SPSS version 25 and results were presented in narratives and tables. All continuous data were presented in numbers and percentage. The relationship between IIFAS scores and socio-demographic variables was tested by using ANOVA and Kruskal-Wallis test. The level of significance for all statistical analysis was less than 0.05.

RESULTS

The sample of the present study comprised of covid positive postnatal mothers (N=150) of whom 44% (N=66) belonged to 20-25 years of age and 30.67% (N=46) were in the age group of 26-30yrs (Table 1). The mean age of participants was 25.18 ±4.09 (M±SD). 46% of the mothers were from nuclear family and 42.67% from three generation family. 35.33% and 27.33% of

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mothers were semiskilled labourers and home makers respectively. Out of 150 study population, 46% and 29.33% of mothers belonged to class III and II socioeconomic status respectively.

Table 1: Socio demographic characteristics of respondents

Characteristics	Frequency	Percentage (%)
Age of respondents		
18-20	21	14
21-25	66	44
26-30	46	30.67
>30	17	11.33
Education		
Illiterate	6	4
Primary	24	16
Secondary	44	29.33
Pre-university	47	31.33
Degree and above	29	19.33
Occupation		
Housewife	41	27.33
Unskilled	34	22.67
Semiskilled	53	35.33
Skilled	22	14.67
Type of family		
Nuclear family	69	46
3Generation family	64	42.67
Joint family	17	11.33
Socioeconomic status, per capita income (BG Prasad classification)		
>7533 - I	14	9.33
3766 - 7572 – II	44	29.33
2260 – 3765 – III	69	46.00
1130 – 2259 – IV	13	8.67
<1130 - V	10	6.67

Majority (81.33%) of the mothers were aware of colostrum as first breast milk and plays vital role in building the immunity in newborns (Table 2). The knowledge of early initiation of breastfeeding (within 1 hour), 6 months of exclusive breastfeeding and continued breastfeeding till the age of 2 yrs was seen in 62%, 90.66% and 74.67% of the mothers respectively. 84% of mothers knew to initiate complimentary feeding after the age of 6 months.92% of the mothers felt rooming in is good and 123 (82%) of the mothers knew to continue breast feeding during

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maternal covid illness. 84.66% mothers had knowledge about wearing mask during breastfeeding. Majority (84.66%) of the mothers knew to wash hands with soap before and after touching the baby. Only 28.67% of mothers had knowledge about regular wiping and disinfection of surfaces.

Table 2: Knowledge of participant mothers towards breast feeding

CHARECTERISTICS	FREQUENCY	PERCENTAGE (%)
Time of initiation of breast feeding		
Within 1 hr	93	62
1 – 4 hr	40	26.67
1-3 days	17	11.33
1 week	00	00
Knowledge about colostrum		
Yes	122	81.33
No	28	18.67
Duration of exclusive breast feeding		
3 months	7	4.67
6 months	136	90.66
9 months	7	4.67
Continued breast feeding to be given till what age		
1 yr		
2 yr	29	19.33
3 yr	112	74.67
	9	26.00
Initiation of complimentary feeding		
3 months	12	8
6 months	126	84
9 months	12	8
Rooming in is good		
Yes	138	92
No	12	8
Breast feeding during maternal covid illness		
Yes	123	82
No	27	18
Burping is must after each feed		
Agree	117	78
Disagree	33	22

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What is Respiratory hygiene during breastfeeding? • Wear a mask during feeding • Wash hands with soap or alcohol based sanitizer before and after touching the baby • Wipe and disinfect the surfaces regularly	127 127 43	84.66 84.66 28.67

More than half (56.67%) of the participant mothers initiated breastfeeding within 1 hour of birth (Table 3). Prelacteal was given by 37 (24.67%) of the mothers.73.33% of the mothers practiced EBF. Complimentary feeding was initiated at the age o 6 months by 84% of the mothers. Rooming in during maternal covid illness was practiced by 76.67% of the mothers. 58.66%, 58% and 27.33% of the mothers practiced wearing masks during breastfeeding, washing hands with soap before or after touching baby and regular wiping and disinfecting the surfaces respectively.

Table 3: Practice among participant mothers towards breast feeding

CHARECTERISTICS	FREQUENCY	PERCENTAGE (%)
When breast feeding was initiated?		
Within 1 hr	85	56.67
1 – 4 hr	37	24.67
1-3 days	18	12.00
1 week	10	6.66
Any pre lacteals were given?		
Yes	37	24.67
No	113	75.33
Top feeding used		
Packaged milk	3	2
Fresh cow's milk	2	1.33
Fresh goat milk	1	0.67
Formula milk	34	22.67
None	110	73.33
Whether exclusive breast feeding given?		
Yes	110	73.33
No	40	26.67
Initiation of complimentary feeding		
3 months	12	8
6 months	126	84
9 months	12	8
Whether breastfed during maternal covid illness?		
Yes	123	82

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No	27	18
Rooming in during maternal covid illness? Yes No	 115 35	 76.67 23.33
Whether followed respiratory hygiene during breastfeeding? • Wear a mask during feeding • Wash hands with soap or alcohol based sanitizer before and after touching the baby • Wipe and disinfect the surfaces regularly	 88 87 41	 58.66 58 27.33

Attitudes of the mothers towards breastfeeding are depicted in Table 4. 34.67% of the mothers opined nutritional benefit of the milk last only until the baby is weaned from breast milk. However 70% of the mothers agreed that breastfeeding increases mother infant bonding and 68% of the mothers felt breastfeeding is more convenient than formula feeding. More than half (56%) of the mothers agreed breastfed babies are healthier than formula fed babies. All mothers (100%) in the study agreed that breastfeeding is less expensive than formula feeding. Only 20.66% of the mothers opined that formula feeding is better option if the mother plans to work outside home. 61.33% of the mothers agreed that the women can breastfeed in public places such as restaurants.70.66% of the mothers stated that breast milk is ideal food for infants and easily digested. 54% of them felt that the mothers who occasionally drink alcohol should not breastfeed the baby. 65.33% of the mothers agreed that mothers who formula feed will miss one the great joys of motherhood. However, the average scores of the IIFAS (60.08 ± 5.76, M±SD) lie in the range of neutral breastfeeding attitudes.

Table 4: Mothers' attitude towards breast feeding on IIFA Scale

Item no	Item	Disagree	Neutral	Agree	Mean±SD
		No (%)	No (%)	No (%)	
1	The nutritional benefit of breast milk last only until the baby is weaned from breast milk	52 (34.67)	33 (22)	65 (43.33)	2.94± 1.11
2	Formula feeding is more convenient than breastfeeding.	53 (35.33)	43 (28.67)	54 (36)	3.02± 0.97
3	Breastfeeding increases mother-infant bonding	10 (6.67)	35 (23.33)	105 (70)	3.89 ± 0.87
4	Breast milk is lacking in iron	19 (12.67)	99 (66)	32 (21.33)	2.91 ± 0.58
5	Formula fed babies are more likely to be overfed than	16 (10.66)	70 (46.67)	64 (42.67)	3.37 ± 0.85

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	breastfed babies				
6	Formula feeding is the better choice if the mother plans to go back to work.	58 (38.66)	61 (40.66)	31 (20.66)	3.2 ± 0.89
7	Mothers who formula feed miss one of the joys of motherhood.	22 (14.66)	30 (20)	98 (65.33)	3.75 ± 0.99
8	Women should not breastfeed in public places such as restaurants	92 (61.33)	40 (26.66)	18 (12)	3.6 ± 0.84
9	Breast fed babies are healthier than formula fed babies.	16 (10.66)	50 (33.33)	84 (56)	3.61 ± 0.88
10	Breast fed babies are more likely to be overfed than formula fed babies	78 (52)	60 (40)	12 (8)	3.56 ± 0.81
11	Fathers' feels left out if mother breast feeds.	66 (44)	75 (50)	9 (6)	3.47 ± 0.75
12	Breast milk is ideal food for infants	3 (2)	39 (26)	106 (70.66)	4.02 ± 0.79
13	Breast milk is easily digested than formula.	1 (0.66)	38 (25.33)	111 (74)	3.96 ± 0.72
14	Formula is as healthy for an infant as breast milk.	106 (70.66)	37 (24.66)	7 (4.66)	3.81 ± 0.75
15	Breastfeeding is more convenient than formula feeding	26 (17.33)	22 (14.66)	102 (68)	3. 78 ± 1.04
16	Breastfeeding is less expensive than formula	0	0	150 (100)	4.6 ± 0.49
17	A mother who occasional drinks alcohol should not breastfeed her baby	25 (16.67)	44 (29.33)	81 (54)	2.43 ± 1.01
			Mean attitude score		60.08 ± 5.76

Table 5 shows differences in socio-demographic variables and attitude score. There was statistical significant difference between per capita income and attitude score. The participant postnatal mothers with lower per capita income less than 1130 Rs/- had better attitudes (63.3 ± 3.43 M± SD) than mothers with high income (57.78 ±6.27) found to be statistically significant (p value 0.008). The differences between attitude scores and age of the mothers, educational level of mothers and type of family was not statistically significant.

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Table 5: Differences in socio-demographic variables and attitude score

Socio-demographic variable	Group (n=150)	Mean (SD)	P value
Age in years			
18-20	21	60.43 (6.201)	0.42
21-25	66	59.23 (4.819)	Not significant
26-30	45	60.72 (5.435)	
>30	17	61.29 (8.837)	
Education			
Illiterate	6	56.67 (3.386)	
Primary	24	58.83 (5.708)	0.084
Secondary	44	59.23 (6.027)	Not significant
Pre-university	47	60.79 (5.124)	
Degree and above	29	62.04 (6.322)	
Occupation			
Housewife	41	59.60 (5.541)	
Unskilled	34	60.00 (5.975)	0.894
Semiskilled	53	60.23 (5.669)	Not significant
Skilled	22	60.74 (6.340)	
Family			
Nuclear family	69	60.46 (5.807)	0.594
3Generation family	64	60.00 (5.640)	Not significant
Joint family	17	58.88 (6.224)	
Family income			
>7533 - I	14	57.78 (6.278)	
3766 - 7572 – II	44	61.29 (5.951)	0.0081
2260 – 3765 – III	69	59.84 (5.761)	Statistically
1130 – 2259 – IV	13	57.30 (4.151)	significant
<1130 – V	10	63.3 (3.433)	

DISCUSSION

The COVID-19 pandemic is an unprecedented health crisis that has disrupted the lives of billions of people across the world and destabilized the health systems worldwide. In addition it has caused fear, stress, anxiety and concern among people[14] and pregnant and postpartum women in particular affecting the practice of breastfeeding and its sustainability during pandemic. Initially there was concern about whether mothers with COVID-19 can transmit the SARS-CoV-2 virus to their infant or young child through breastfeeding.[15]SARS-CoV-2 virus spreads mainly by droplet transmission, although it has also been detected in blood and stool samples.[16-18]The

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implications of transmission risk of COVID-19 need to be framed in terms of the scope and severity of COVID-19 infection in infants compared to the adverse consequences of using breastmilk substitutes and separation of newborns and young infants from mothers.[15] According with the new evidence and WHO guidelines all the mothers are advised to continue breastfeeding, while practicing good respiratory hygiene during breastfeeding[9].

The present study was conducted with the aim of providing insight into the knowledge, practice and attitude towards breastfeeding and at the same time, maintaining respiratory hygiene during breastfeeding among covid positive postnatal mothers. Majority of the mothers (90% and 81.33% respectively) knew about EBF for 6 months and colostrum. But EBF was practiced by only 73.33% and 24.67% of the mothers had given prelacteal feeds. These findings of not practicing what they knew are similar to the findings in study by Wana AD[19] and Poreddi V et al[20] done during pre covid era. 138 (92%) of the participant mothers in the present study felt rooming in is good and 115(76.67%) practiced rooming in. 123 (82%) mothers were aware of continued breastfeeding during maternal COVID illness and they continued to breastfeed their infants.In the present study among covid positive postnatal mothers, 84.66% of the mothers had knowledge regarding respiratory hygiene, while it is followed only by 58% of them. These findings are in consistent with results of study by Laamiri ZF et al, [(21)] in which 82.1% of the mothers had knowledge regarding respiratory hygiene, but could only be followed by 42.2% of them. This good knowledge can be explained by educational role of health care workers, implementation of awareness campaigns by government of India, media and social networks in this context, which aimed at providing reliable information to the general public regarding the prevention of Sars Cov 2 infection. These findings emphasize the need of educational campaigns on good respiratory hygiene while breastfeeding to provide accurate information.

This is the first of its kinds study done in India among postnatal covid mothers to assess the attitude towards breastfeeding using IIFAS. In the present study, most mothers had low attitude scores towards “the benefit of the breastfeeding lasts as long as only baby is breast fed “, “Breast milk is lacking in iron” and “a mother who occasionally drinks alcohol should not breast feed her baby.” The study by Poreddi V[20] et al in the pre-covid era found similar findings in other than “Breast milk is lacking in iron” where the attitude was neutral. Most of the mothers in our study showed neutral attitude towards “formula feeding is more convenient than breastfeeding”, whereas in study by Poreddi V et al[20], study participants had positive attitude. In comparison to pre COVID study by Chen S et al [(22)]. The postnatal mothers in our study had higher scores towards IIFA scale Item numbers 5, 6, 7 and 8. The study participants had better attitude towards “women should not breastfeed in public places such as restaurants” and “breastfed babies are healthier than formula fed babies” similar to the findings by Poreddi V et al[20]. The present study showed better scores in “breast milk is ideal food for infants”, “breast milk is easily digested than formula” and “breastfeeding is less expensive than formula” in comparison to study by Poreddi V et al[20].

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In a study by Dubois L et al, the multivariate analysis indicated that mothers' education level is the most important factor in initiation and continuation of breastfeeding[23]. There was no statistically significant difference found between attitude towards breastfeeding and age, educational level of mothers and type of the family. The present study observed postnatal mothers with lower per capita income less than 1130 Rs/- had better attitudes (63.3 ± 3.43 M± SD) than mothers with high income (57.78 ±6.27) and found to be statistically significant (p value 0.008) in contrast to the findings by Poreddi V[20] study, where mothers with higher family income had better attitude towards breastfeeding. The positive attitude towards breastfeeding and optimal EBF practices are directly correlated[24].The participant mothers in the present study had neutral attitude towards breastfeeding.

LIMITATIONS

The results of the present study are limited by its cross-sectional nature, small sample size and single centre design. The future studies should be considered on larger sample, multicentric and qualitative design. Despite of these limitations, the findings of our study may be helpful to all the health care workers related to mother and child care in designing interventions, promoting breastfeeding and to improve respiratory hygiene while feeding.

CONCLUSIONS AND RECOMMENDATIONS

The present study demonstrated the neutral attitude towards breastfeeding among covid positive postnatal mothers. There is a gap between knowledge and practice of good respiratory hygiene.

This study recommends the further strengthening of public health information, education and communication campaigns promoting breastfeeding and good respiratory hygiene. There is a need of interventions like Focus Group Discussions to improve the knowledge and practice of respiratory hygiene while feeding. Further larger studies are needed in exploring the factors affecting the practice of respiratory hygiene, role of income in attitude towards breastfeeding in the covid era and whether COVID-19 pandemic has affected the maternal attitudes towards breastfeeding.

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