pISSN 2394-6032 | eISSN 2394-6040

Original Research Article

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20205177

Bridging the gap-determinants of successful breastfeeding among mothers of rural India

Alok M. Janardhan^{1*}, Sandhya Alok¹, Leelavathi Janardhan², Y. M. Sudhakar³

Karnataka India

Received: 07 September 2020 Revised: 23 October 2020 Accepted: 26 October 2020

*Correspondence: Dr. Alok M. Janardhan.

E-mail: alokmacho88@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Breastfeeding is the most crucial intervention with exponential positive impact on the maternal and infant health, that can change the community health outcome. Although a general awareness regarding breastfeeding cannot be undermined, there is significant gap in its optimal understanding, and practice in the rural community.

Methods: Questionnaire-based cross-sectional study conducted in a rural nursing home and clinic. Mothers aged 15-45 years who were actively breast feeding or have breastfed in the past, visiting for various reasons.

Results: Out of 300 mothers included in the study, most mothers were aged 20-30 years (66%), stay-at-home (77%), below-poverty-line (81%) with school-level education (43%). 77% mothers knew about breastfeeding initiation within 1 hour of life, 75% knew exclusive breastfeeding must be practiced for 6 months. 74% knew that breastmilk reduces risk of allergies in baby, 58% were aware of its thermoregulatory benefits in neonates, 41% knew about its contraceptive benefits. 17% mothers felt embarrassed to breastfeed in public, 28% felt breastfeeding is a hindrance to occupation. 51% mothers fed by partial emptying of both breasts in each feed, 28% practiced burping of children for 20 minutes, 5% stored expressed breastmilk at room temperature, none knew about storage of breastmilk in fridge.

Conclusions: Mothers lack awareness about thermoregulatory benefits, reduced allergy risks and lactational contraceptive benefits of breastfeeding. They lag significantly, regarding complete emptying of each breast during feeds, adequate burping of baby, expression and storage of breastmilk. Significant gap between knowledge and practice of successful breastfeeding noted.

Keywords: Knowledge, Attitude, Practice, Successful breastfeeding

INTRODUCTION

Breastfeeding is a boon to the newborn, is perhaps the most effective elixir ensuring child's health and survival. It nourishes a healthy growth, protects against many common childhood infections and future comorbidities like diabetes, obesity, and promotes a sharp intellect as evidenced in intelligence tests. It is the ideal food for the

infant, best asset for the mother and a health tool in poor and developing countries.

WHO and UNICEF recommendations include early initiation of breastfeeding within first hour, exclusive breastfeeding till first 6 months, and nutritionally adequate safe complementary food introduction at 6months along with breastfeeding till 2 years of age.¹

¹Department of Paediatrics, Shrinivasa Nursing Home, Azad Road, Sakleshpur, Hassan District, Karnataka India ²Department of Obstetrics and Gynaecology, Shrinivasa Nursing Home, Azad Road, Sakleshpur, Hassan District,

³Ganesh Clinic, BM Road Sakleshpur, Hassan, Karnataka India

However, as per WHO, about 2 out of 3 infants are not exclusively breastfed for the recommended 6 months, this rate has remained static for 2 decades. ¹ IYCF states that 820,000 lives could be saved every year among under 5-year olds, if all children were optimally breastfed till 2 years. ² Indian statistics reveals that only 46.4% of the mothers exclusively breastfeed their children in first 6 months in our country. ³ NFHS-4 survey in 2015-2016 show that only 55.7% of mothers breastfed within 1st hour in Hassan district, Sakleshpur, which is less than overall state average of 57.7% and an average 59.6% in rural Karnataka. ⁴

While the practice of breastfeeding has social, cultural, religious influences and has a direct association with the maternal education and occupational status; a positive maternal attitude to infant feeding is a stronger independent predictor of breastfeeding initiation, successful feeding and continued feeding practices.⁵ IYCF has observed that breastfeeding practices are highly responsive to supportive interventions, hence exclusive followed by continued breastfeeding, can be coaxed to a greater extent over a few years.²

The government of India has brought about several schemes to increase the awareness, whose impact must be periodically assessed for further improvement. Several studies have been conducted regarding the knowledge attitude and practice of breastfeeding; however, these studies have all been done in a hospital setup, which may not reflect the true community of rural India. A cross-sectional combined assessment of both the community health workers and rural community with regards to knowledge attitude and practice of breastfeeding is lacking.

Rural Sakleshpur is mainly a population of plantation workers and labourers who have long working hours and erratic employment that is hugely dependant on the climatic conditions. Our study was conducted to identify and quantify the gap in awareness, acceptance and practice of breastfeeding in rural community, that have often noticed in our daily OPD, and in the process, bridge the said gap at community level. Also tried to reach out to the grassroot and community health workers, by involving the Anganwadi and ASHA workers of Sakleshpur and conducted a separate seminar and interactive workshop along with rotary international, Sakleshpur branch during world breastfeeding week in August 2019. During the session we presented our findings and analysis in the community as identified by our study, took their feedback and experiences, and also corrected and enriched their knowledge.

The human milk must not be underestimated, it is a "powerful medicine" that can save lives and change health outcome, in all factions of society and developmental status and its optimum utilisation must be our top priority.⁶ This is our humble contribution for a healthier future.

Thus, carried out this study with the set objectives of assessing, quantifying the determinants of successful breastfeeding among women of rural community; and correlating determinants of breastfeeding with sociodemographic factors.

METHODS

Sample size was calculated using the following assumptions: 46.4% prevalence of exclusive breastfeeding (NFHS-4) 95% confidence level with 6% margin of error, in a population size of 11794 women in Sakleshpur, thus the recommended sample size was 260 among the community. 4.8

This was a cross-sectional quasi-structured questionnairebased study.

A total of 300 mothers who were attending the out-patient department of Shrinivasa nursing home, Ganesh clinic were included spanning a study period of 1 month, from 1st July to 1st August 2019 and mothers who attended the outreach workshop conducted by us. Inclusion criteria included all mothers aged 15-45 years who are actively breast feeding or have breastfed in the past, visiting the out-patient department of Shrinivasa nursing home and Ganesh clinic for various reasons. Exclusion criteria excluded mothers who were not willing to participate in study and mothers involved in health care.

Informed consent was taken from the mothers. A quasistructured questionnaire consisting of determinants of breastfeeding grouped as 10 questions on demography and personal history, 10 questions on knowledge, 6 on attitude and 10 on practice of breastfeeding were included that was printed in Kannada, local language, and English. Non-medical staff (to prevent bias) in clinic helped those who could not read, and marked their answers.

Following submission of the questionnaire, the women included in study, were individually briefed regarding breastfeeding, all questions explained, doubts and worries cleared by us in the clinic and nursing home.

Statistical analysis carried out by collection and analyzing information using SPSS statistical software (version 17). Descriptive statistics like mean, frequency and percentages of various parameters were calculated. Chisquare and Mann Whitney U tests were used to deduce the statistical significance between various determinants. The p value <0.05 was considered significant and p<0.01 was considered highly significant.

RESULTS

Our study of the mothers in Sakleshpur showed a sociodemographic distribution of mainly below poverty line (BPL) rural population, with mean age group of 20-30 years, with school level education, and stay-at-home mothers. Frequencies and percentages shown in (Table1). Sociodemographic correlations showed positive test of significance for neonatal problems and mode of delivery, significant association of bottle feeding in the higher educated class of mothers and significant association of optimal exclusive breastfeeding and number of children; as shown in (Table 2).

The knowledge of the mothers in our community was fairly good, as indicated in the table 3. Knowledge regarding skin-to-skin contact and thermoregulation in breastfeeding was low (58%) and so was the awareness about natural contraception (41%).

The attitude of mothers towards breastfeeding has been summarised in the (Table 4).

The practice of breastfeeding in mothers showed that only 28% mothers burp their children for the optimal period of 20 min, 51% mothers fed their babies by partial emptying of each breast, only 12% knew the correct technique of detaching the latching of baby from breast, only 5% stored expressed breastmilk at room temperature and 0% stored in fridge, and most common first weaning food was ragi (55%). The results tabulated (Table 5).

The average scores of mothers in the study for knowledge was 16.12 out of total 20, mean attitude score was 9.79 out of 12, and mean practice score was 12.87 out of 20.

Table 1: Socio-demographic details of mothers in study.

Particulars	Group	Frequency	Percentage
Age (year)	≤20	6	2
	20-30	198	66
	>30	96	32
No. of children	1	138	46
	2	144	48
	>2	18	6
A 33	Town	87	29
Address	Rural	210	70
	Hindu	228	76
Dalisian	Muslim	69	29
Religion	Christian	3	1
	Others	0	0
	Illiterate	3	1
	Primary school	51	17
Mothers education	High school	75	25
	PUC	87	29
	Graduate/above	84	28
Occumation	Yes	69	23
Occupation	No	231	77
Economic status	BPL	243	81
Economic status	APL	57	19
Diagonal deliment	Home	12	4
Place of delivery	Hospital	288	96
	Normal	210	70
Mode of delivery	Caesarian	87	29
-	Instrumental	3	1
	Present	36	12
	Premature	3	1
	Low birth weight	9	3
	Respiratory distress	6	2
Neonatal problems	Jaundice	6	2
	Sepsis	0	0
	Meconium liquor	6	2
	Twins	6	2
	others	0	0
	Absent	264	88
Neonatal separation from	Yes	33	11
mother	No	267	89

Table 2: Socio-demographic correlations.

Correlations			Va	riables				P
Education vs exclusive	Education	<1	1-2	3-5	6	6-8	>8	
	Illiterate	0	0	3	0	0	0	
	Primary school	0	0	6	39	3	3	
breastfeeding	High school	0	0	12	57	0	6	
(Month)	PUC	0	0	6	75	6	0	
	Graduation and above	3	0	12	54	12	3	
	Education		Bottle f	eeding pres	ent	No bottle feeding		
	Illiterate		3			0		
Education vs	Primary schoo	1	3			48		<0.00
bottle-feeding	High school		12			63		- <0.00 - -
	PUC		15			72		
	Graduation and		24			60		
	Exclusive brea	stfeeding	One chi	ild		2 children	>2 children	_
Exclusive	1		3			0	0	
breastfeeding	1-2		0			0	0	_
vs number of	3-6		21			15	3	0.031
children	6		96			117	12	
(Months)	6-8		12			9	0	
	>8		6			3	3	
	Exclusive brea	stfeeding		tion-yes		Occupation-n	10	_
Exclusive breastfeeding vs occupation	1		0			3		
	1-2		0			0		
	3-6		6			33		0.087
(Month)	6		54			171		
,	6-8		3			18		
	>8		6			6		

Table 3: Determinants of breastfeeding reflecting knowledge of the mothers.

Variables	Group	Frequency	Percentage (%)
Breastfed within hours of birth	1	231	77
	1-4	39	13
	_>4	18	6
(Hour)	>1 day	6	2
	Nil feeding	6	2
Should colostrum be given	Yes	282	94
	No	18	6
	20	237	79
Each feed should last for (Min)	20-30	54	18
	>30	9	3
	1	3	1
	1-2	0	0
Exclusive breastfeeding must be	3-5	39	13
practiced for how long? (Month)	6	225	75
	6-8	21	7
	>8	12	4
Dreagtfed haby is healthy haby	Yes	296	99
Breastfed baby is healthy baby	No	4	1
Breastmilk contains all the nutrients	Yes	284	95
required for baby	No	16	5
Breastfeeding reduces risk of	Yes	223	74
allergies	No	77	26
Breastmilk is vital for physical and	Yes	273	91

Continued.

Variables	Group	Frequency	Percentage (%)
mental growth of baby	No	27	9
Breastfeeding helps in	Yes	173	58
thermoregulation of newborn baby	No	127	42
Breastfeeding provides contraceptive	Yes	122	41
benefits	No	178	59

Table 4: Determinants of attitude of mothers towards breastfeeding.

Particulars	Group	Frequency	Percentage (%)
Physical beauty and physique are	Yes	12	4
lost with breastfeeding in mother	No	288	96
Breastfeeding is an old, outdated	Yes	34	11
practice	No	266	89
Breastmilk is pure and good	Yes	273	91
	No	27	9
Breastfeeding improves the mother- baby bonding	Yes	292	97
	No	8	3
Embarrassing to breastfeed in public	Yes	50	17
places	No	250	83
Breastfeeding is a hindrance to	Yes	84	28
occupation	No	216	72

Table 5: Determinants of successful practice of breastfeeding.

Particulars	Group	Frequency	Percentage (%)
Did you give pre lacteal feeds	Yes	30	10
Did you give pre facteal feeds	No	270	90
Predominant posture of mother	Mostly sleeping	78	26
while feeding	Mostly sitting	222	74
Latching of baby to breast	Nipple and areola complex into mouth	249	83
involves	Only nipple into mouth	51	17
Emptying of one breast	Yes 147		49
completely before giving other breast, in each feed	No, partial feeding from each breast	153	51
De-attachment of baby from	Yes	36	12
breast by using mother's little finger	No	264	88
Burping of baby after each feed (Min)	<20	207	69
	≥20	84	28
(IVIIII)	Until burp	9	3
	Yes	186	62
	Expressed breastmilk kept in room temp	15	5
Do you continue breastfeeding	Expressed breastmilk kept in fridge	0	0
while going to work	Come and feed baby in between work	171	57
white going to work	No	111	37
	Cow's milk	87	29
	Formula milk	24	8
Use of feeding bottle	Yes	57	19
Ose of recuing bottle	No	243	81
What did you give as first weaning food?	Ragi feeds	165	55
	Rice based	81	27
	Vegetables and fruits based	3	1
	Weaning Formula foods	51	17
Do you continue breastfeeding	Yes	267	89
along with complementary food	No	24	8
till 2 years	Don't know	9	3

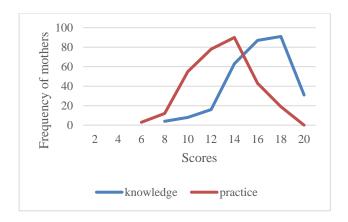


Figure 1: Comparison of distribution of knowledge and practice scores among mothers.

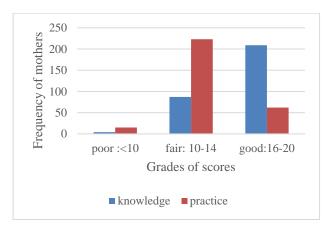


Figure 2: Grading of scores for knowledge and practice.

Grading of the scores for knowledge and practice was made as follows: Poor: scores less than 10, fair: scores 10-14, good: scores 16-20.

Mann Whitney U test between determinants of knowledge and practice scores showed high significance of p<0.000.

DISCUSSION

This study was done in a rural nursing home and clinic which caters to a population of mainly low socio-economic strata with varied cultural and regional beliefs regarding breastfeeding practices. The purpose of this study was to identify the factors which influence the rural mothers in their journey towards successful motherhood that can only be achieved by having a sound knowledge of breastfeeding.

In our study most of the mothers were not working (77%) during the nursing period of the baby, irrespective of their education and economic status. Hence exclusive breastfeeding practices did not show significant association, comparable with Vijayalakshmi et al, whereas other studies have found positive association of

breastfeeding with higher education and socio-economic status. 7,9,10

We have observed that bottle-feeding was a prevalent practice among the higher educated mothers, statistics showed significant p value. Kumar et al has also recorded higher prevalence of bottle usage as the artificial feeding technique. The rising trend of bottle feeding among the more affluent society must be duly noted and prompt actions taken, since it is associated with increased risk of infections in infants. Prevalence of feeding bottle usage was remarkably low among the majority, consisting of lesser educated mothers in our study which is encouraging.

Statistically significant correlation was noted between EBF and number of children, wherein the period of EBF decreased with increasing number of children. This correlates with Ketbi et al. 12 Our study emphasizes the need for effective motivation of multigravida mothers towards optimal EBF upto 6 months.

Assessment of WHO recommendations

Hospital based studies by Vinay et al recorded 41%, Ekambaram et al 92%, and Krishnendu et al 68.3% mothers had initiated breastfeeding within 1st hour of life. However, a community-based study in Kumar et al showed merely 32.3% aware mothers. 77% mothers in our study knew that breastfeeding should be initiated within 1hour of life which is an improvement. 9,10,13,14

Importance of colostrum was known to 94%, which is a significant increment, as compared to studies in Kumar et al of 88.8%, Vinay et al of 27.5% and Ekambaram et al of 56% mothers. 9,10,13

75% mothers knew that EBF was to be practiced for 6-month period, while 14% mothers fed their babies for less than the optimum period. Other studies stand at similar statistics on an average (60, 69.5, and 72%), least being 38% Ekambaram et al, highest being 85.2% Vijayalakshmi et al.^{7,9,10,13,15} This stagnation reflects the need for more maternal counselling on EBF in our well baby clinics.

Lack of knowledge in the community

The reduced risk of allergies with breastfeeding was known to 74% of mothers comparable to Vinay et al which noted 74.6%. Hypothermia is a common finding in neonates, and is potentially life-threatening, which can be easily prevented by the simple practice of breastfeeding. ¹³ A study done in Sri Lanka has shown that 65% mothers were aware of hypothermia. ¹⁶ Thermoregulatory benefits of breastfeeding were known only to only 58% mothers in our study. This emphasizes the need for more qualitative researches in India regarding breastfeeding and hypothermia. Contraceptive benefits were known only to 41% mothers, in spite of vigorous promotion by the

government. Similar findings were noted in Neravi et al of 48.4%, Ekambaram et al of 33%, while Jordon study showed higher percentage of 65.7%. Proper technique of expressed breastmilk is unknown to majority of the mothers in our study, which is one of the main reasons for early cessation of breastfeeding and depriving the benefits of continued breast feeding to the babies of working mothers. 10,17,18

In this study we concluded that the overall knowledge of the mothers was satisfactory, with 209 (69.6%) scoring good, 87 (29%) scoring fair, and 4 (1.3%) scoring poor.

Mothers had a generally positive approach to breastfeeding, with a mean high score of 9.79 on 12.

Determinants deterring positive attitude

In concordance with other studies many mothers felt embarrassed while feeding in public places (17%), and that breastfeeding was a hindrance to working mothers (28%).^{7,12,14,18,19} Policy makers should note that encouragement of breastfeeding towards this end is essential in terms of providing a suitable restroom for mothers to feed in workplaces and public areas.

Our study showed that although the knowledge and attitude of mothers had improved significantly over the years, the practice of breastfeeding was punctured by several notions and ignorance, as shall be pointed out further.

The practices of mothers showed room for improvement with 20.67% (62) scoring good, 74.3% (223) scoring fair, and 5% (15) scoring poor. Mothers preferred predominantly sitting posture (74%), which is encouraging as the risk of aspiration of milk is less.

Our region predominantly gives ragi (55%) as the first weaning food, followed by rice-based foods (27%), and formula weaning foods (17%), which shows that home based weaning foods are still being practiced in rural areas

The proper technique of latching of baby to breast was followed by 83% mothers in our study compared to Deshmukh et al²⁰ where only 30% mothers knew about proper latching onto breast.

Our study revealed that emptying of one breast completely at a time was followed by 49%; while majority of the mothers partially fed their babies from both breasts during each feed (51%). This results in inadequate nutrition of baby due to lack of hind milk, hence poor weight gain, watery greenish loose stools and frequent feeding in the baby. Similar findings were noted in Mohammed et al with 17.3% and Chaudhary et al with 15% mothers emptying one breast completely. 21,22

The technique of using the mother's little finger to detach the baby from the breast, was not practiced by majority (88%). Forceful detachment causes injuries to mothers' nipple, resulting in cracks and in turn feeding problems and sometimes untimely cessation of breastfeeding. This has not yet been studied in breastfeeding awareness studies in the past and hence creating void, necessitating further researches in other parts of the world.

Burping of the baby after feed, though known to most mothers, is sub-optimally followed. Most mothers burp only for 5 minutes or till one burp is released. Only 28% mothers burped for 20 minutes. Study by Chinnasami et al, showed that only 22.5% mothers burped for 15 minutes or more. Deshmukh et al study showed only 70% knew about burping, 91.8% in tertiary care center in Bangalore, but duration not studied.^{7,15,20}

A major deterrent to successful continuation

Breastfeeding was the lack of practice of expressed breastmilk feeding. Most mothers preferred to stay at home during the nursing period. Among those whose chose to work, 57% mothers came in between work to feed, while 37% chose to stop breastmilk and started on cow's milk (29%), or formula milk (8%). Only 5% practiced expression of milk and storing at room temperature. None of the mothers were aware of storage of expressed milk in refrigerator. Similar results in Mogre et al with 11.1% mothers practicing expression of milk, Ekambaram et al showed 34%. ^{10,19} More timely education is needed on breast milk storage and its benefits to both baby and mother.

Gap between knowledge and practice of breastfeeding

Comparison of the mean scores for knowledge and practice shows a drastic dip in practice. The difference in the scores of mothers in knowledge and practice was significant when tested statistically using Mann Whitney U test with p value <0.000. This is evidence that though various drives from government, health sectors and nongovernmental organizations over the years have improved the knowledge of mothers regarding breastfeeding, its correct practice is lagging behind significantly, the onus of correction of which lies with practicing doctors especially in the grass root level.

Limitations

This study was health center based; hence the findings of this study may not be representative of the entire community, necessitating a community-based study. Our data collection method is also prone to recall bias among mothers with older children.

CONCLUSION

Our study has highlighted several determinants that deter successful breastfeeding in mothers. Determinants that

have been successfully imbibed by mothers include early initiation of breastfeeding within 1-hour, exclusive breastfeeding till 6 months and starting complementary feeds thereafter along with breastfeeds, and nurturing a positive attitude towards breastfeeding. Knowledge regarding the benefits of breastfeeding towards thermoregulation, reduced allergies and lactational contraception is poor. Major lapses were found in practice of breastfeeding which included partial emptying of breasts during each feed, improper burping techniques, lack of knowledge regarding detachment of baby from breast if required without causing injury to nipple, lack of knowledge and practice of expression of breastmilk and its storage. Our study has also pointed towards the rise in use of feeding bottles among the higher educated and working classes. The significant gap between knowledge and practice shows that mothers must be tutored about "how to do" rather than "what to do." To bridge the gap, focus must shift to empowerment of practice of breastfeeding.

ACKNOWLEDGEMENTS

Author would like to thank all the mothers who took part in this study, and the nursing and non-medical staff who have assisted us.

Funding: No funding sources Conflict of interest: None declared

Ethical approval: The study was approved by the

Institutional Ethics Committee

REFERENCES

- World Health Organization. Available fromhttps://www.who.int/news-room/factsheets/detail/infant-and-young-child-feeding. Accessed on 27 August 2020.
- 2. UNICEF. Breastfeeding- a mother's gift for every child. Available from-https://www.unicef.org/publications/files/UNICEF_B reastfeeding_A_Mothers_Gift_for_Every_Child.pdf. Accessed on 27 August 2020.
- 3. UNICEF. Available fromhttps://www.unicef.org/infobycountry/india_statistics .html 2012. Accessed on 14 July 2020.
- 4. International Institute for Population Sciences (IIPS) and ICF. National Family Health Survey (NFHS-4), India, 2015-16: Karnataka. Mumbai: IIPS. 2017.
- 5. Chen CH, Chi CS. Maternal intention and actual behavior in infant feeding at one month postpartum. Acta Paediatr Taiwan. 2003;44:140-4.
- Lydia Furman. Breastfeeding is powerful medicine. Pediatrics. Updated on 22 April 2020. Available from https://www.aappublications.org/news/2020/04/22/br
 - eastfeeding-powerful-medicine-pediatrics-4-22-20. Accessed on 27 August 2020.
- 7. Vijalakshmi P, Susheela T, Mythili D. Knowledge attitudes and breastfeeding practices of postnatal

- mothers: A cross-sectional survey. Int J health sci. 2015;9(4).
- Sakleshpur Population Census 2011-2020. Available fromhttps://www.census2011.co.in/data/town/803171sakleshpur-karnataka.html. Accessed on: 27-august-2020. Accessed on 27 August 2020.
- 9. Kumar S, Jha SK, Singh A, Rawat CMS, Awasthi S, Bano M et al. Knowledge, Attitude and Practices (KAP) Regarding Breastfeeding: A Community based Cross Sectional Study from Rural Uttrakhand. Healthline J. 2015;6(2).
- 10. Ekambaram M, Bhat VB, Ahamed MAP. Knowledge, attitude and practice of breastfeeding among postnatal mothers. Curr Pediatr Res. 2010;14(2):119-24.
- 11. World Health Organization. Infant and young child feeding Model Chapter for textbooks for medical students and allied health professionals. https://www.who.int/nutrition/publications/infantfeed ing/9789241597494.pdf. Accessed on 27 August 2020.
- 12. Ketbi MIA, Noman SA, Ali AA, Darwish E, Fahim MA, Rajah J. Knowledge, attitudes, and practices of breastfeeding among women visiting primary healthcare clinics on the island of Abu Dhabi, United Arab Emirates. Int Breastfeed J. 2018;13:26.
- 13. Vinay BS, Sandeep M, Sridhar PV. Assessment of knowledge, attitude and practice of breast feeding among postnatal mothers at Mandya Institute of Medical Sciences, Mandya, India. Int J Contemp Pediatr. 2016;3(2):504-8.
- 14. Krishnendu M, Devaki GJ. Knowledge, Attitude and Practice Towards Breastfeeding among Lactating Mothers in Rural Areas of Thrissur District of Kerala, India: A Cross-Sectional Study. Biomed Pharmacol J. 2017;10(2):683-90.
- 15. Chinnasami B, Sundar S, Kumar J, Sadasivam K, Pasupathy S. Knowledge, Attitude and Practices of Mothers Regarding Breastfeeding In A South Indian Hospital. Biomed Pharmacol J. 2016;9(1):195-9.
- 16. Madhavi, Wickremasinghe P, Jayasooriya R, Nawarathne K, Ranaweera N. Mothers' knowledge and practices on thermoregulation of neonates in Sri Lanka. Eur int j applied sci technol. 2014;1:55-69.
- 17. Neravi A, Udayashree V, Gundmi A. The knowledge, attitude, practice of contraception in breastfeeding mothers. Int J Reprod Contracept Obstet Gynecol. 2018;7(7):2862-8.
- 18. Altamimi E, Nsour RA, Dalaen DA, Almajali N. Knowledge, Attitude, and Practice of Breastfeeding Among Working Mothers in South Jordan. Workplace Health Safety. 2017;65(5):210-7.
- 19. Mogre V, Dery M, Gaa PK. Knowledge, attitudes and determinants of exclusive breastfeeding practice among Ghanaian rural lactating mothers. Int Breastfeed J. 2016;11:12.
- 20. Deshmukh V, Rasool U, Kalyankar B, Gaikwad R, Yelikar K. Knowledge, attitude and practice of breast feeding at a tertiary care centre in the government

- medical college and hospital, Aurangabad, India. Int J Reprod Contracept Obstet Gynecol. 2016;5(6):1912-5.
- 21. Mohammed ES, Ghazawy ER, Hassan EE. Knowledge, attitude and practices of breastfeeding and weaning among mothers of children up to 2 years old in a rural area in El-Minia Governate, Egypt. J Family Med Prim Care. 2014;3(2):136-40.
- 22. Chaudhary RN, Shah T, Raja S. Knowledge and practice of mothers regarding breastfeeding: A

hospital-based study. Knowl Pract Breast Feed. 2011;9:194-200.

Cite this article as: Janardhan AM, Alok S, Janardhan L, Sudhakar YM. Bridging the gap-determinants of successful breastfeeding among mothers of rural India. Int J Community Med Public Health 2020;7:5006-14.