

A Cross Sectional Survey on Knowledge, Attitude and Breast-Feeding Practices among Postnatal Mothers Delivering at Tertiary Care Hospital in North India

Rajender Singh¹, Mangla Sood², Vipin Roach³, Ishaan Sood⁴

^{1,3}Assistant Professor, ²Associate Professor,

Department of Pediatrics, Indira Gandhi Medical College, Shimla, Himachal Pradesh 171001, India

⁴Indira Gandhi Medical College, Shimla, Himachal Pradesh 171001, India

Corresponding Author: Mangla Sood

ABSTRACT

Background: Despite benefits of breast feeding for both the infants and mothers, its prevalence has remained low worldwide. The present study was conducted to examine the knowledge and attitude towards breast feeding practices among postnatal mothers.

Methodology: A cross sectional study was conducted among non-randomly selected postnatal mothers at a tertiary care hospital in North India. Data was collected through a structured online questionnaire administered on electronic tablet before discharge.

Results: Among 430 females enrolled in study, majority (98.65%) of the mothers believed breast milk is best nutrition for infant. 211(95%) multipara were breastfeeders, 64 among them had breastfed for more than 2 years. Only 9 mothers had stopped BF before 6 months. However, only 301(78%) had initiated breast feeding within one hour of birth. Early initiation was higher among vaginal (50.34%) compared to Caesarean (25.7%) births. Only 40% mothers observed correct positioning and attachment of infant on breast. Higher number of antenatal visits and correct skill of latching infant on breast were significantly associated with better exclusive BF rates. 91% mothers preferred to increase suckling on breast by infant to tackle problem of inadequate breast milk output.

Conclusion: Our findings showed increase knowledge and positive attitude for BF among post natal mothers delivering in hospitals. We emphasise on the importance of prenatal

education to mothers and fathers on breast-feeding. We also recommend strengthening the public health education campaigns to promote breast-feeding.

Keywords: Attitudes, Breast feeding, India, Infant feeding practices, Knowledge, Mothers

INTRODUCTION

Breastfeeding (BF) is one of the most important and cost-effective public health interventions playing a very important role in the health of both mother and baby. A meta-analysis published in Lancet series indicates breastfeed protect from respiratory, diarrhoeal and other serious infections.⁽¹⁾ Exclusively breastfed children perform better on intelligence tests, are less likely to be overweight or obese and less prone to asthma and diabetes later in life. Women who breastfeed also have a reduced risk of breast and ovarian cancers. Its promotion therefore results in the promotion of national health especially in low- and middle-income group countries. WHO and UNICEF recommend early initiation of BF within 1 hour of birth and exclusive BF for the first 6 months of life along with introduction of nutritionally-adequate and safe complementary (solid) foods at 6 months together with continued BF to 2 years of age or beyond.⁽²⁾ WHO is actively working to increase the rate of

exclusive BF for the first 6 months up to at least 50% by 2025.⁽³⁾ The World Breastfeeding Trends Initiative (WBTi), an innovative tool which assesses gaps in policy and programme areas, in its 2015 assessment report mentioned that India scored 0/10 in Baby friendly Hospital Initiative.⁽⁴⁾ Consequently in 2016, the Ministry of Health & Family Welfare launched “Mother’s Absolute Affection” (MAA) programme with the objective of increasing early and exclusive breastfeeding in health facilities.⁽⁵⁾

Although institutional delivery rate is fairly good at 80% in Himachal Pradesh, only 84% among the hospital births are put to breast on the first day of life, only 45% started BF in the first hour of life and only 70% of children under six months are exclusively breastfed.⁽⁶⁾ There is improvement compared to NFHS-4,⁽⁷⁾ still many infants are deprived of the highly nutritious first milk (colostrum) and the antibodies. The infant mortality rate (IMR) in Himachal Pradesh as per NFHS-5 is estimated to be 26 per thousand live births, down from the NFHS-4 estimate of 34; however, under five mortality rate is estimated to be 29 deaths per thousand live births.⁽⁶⁾ To achieve sustainable development goals of infant mortality rate and neonatal mortality rate as set for Himachal Pradesh we have to promote BF. This study was done to assess the knowledge and breastfeeding practices among mothers delivering in the hospital.

MATERIAL AND METHODS

Study setting and design

This cross-sectional study was carried among the women delivering in the hospital labour room from November 2020 to April 2021 over a period of 6 months and admitted in the post-natal wards of Indira Gandhi Medical College and teaching hospital, Shimla and who consented for participation. The participants were selected by convenient non-random sampling. Mothers who lost their baby, babies admitted in neonatal intensive care unit

prior to starting breastfeeding, and mothers having babies with conditions/malformations where BF was difficult or contraindicated were excluded from the study.

Sample size

An extrapolation from the NFHS 5 data on Himachal Pradesh demographic and health survey⁽⁶⁾ suggests a prevalence of breast feeding of 70%; hence, the calculated sample size was 370, keeping power at 90% and level of significance at 0.05. Keeping 20% attrition, it was decided to enrol 440 mothers.

Data Collection

An online questionnaire, created ad hoc on Google Forms, Google LLC, Mountain View, CA, USA, was administered using an electronic tablet by the lactation counsellor to the mother during her stay in post-natal ward. Data was gathered in a Google Sheet document and transferred to a Microsoft Excel worksheet (Microsoft, Redmond, WA, USA) for subsequent analysis. A structured questionnaire was used to obtain information on the socio-demographic characteristics of each study participant such as age, residence, parity, education, antenatal visits, type of delivery, source of her information, her knowledge about breastfeeding and complementary feed during earlier births, skill on lactation positioning and attachment, prior breastfeeding history. Correct position at breast was defined as new-born’s body well supported, the head, neck and the body of the baby are kept in the same plane, entire body of the baby faces the mother and baby’s abdomen touches mother’s abdomen.⁽⁸⁾ To check correct attachment while BF, whether baby’s mouth is wide open, lower lip is turned outwards, baby’s chin touches mother’s breast and majority of areola is inside the baby’s mouth were observed.⁽⁸⁾ Only if all the points of attachment and positioning were found correct, skill was scored as correct,

otherwise she was counselled on correct technique.

Statistical analysis

Data was collected and analysed using Microsoft excel. Continuous variables were summarized using descriptive statistics. The age of study respondents was summarized in median with Inter-quartile range. Categorical variables were summarized using frequencies and percentages. Pearson's Chi-square test was used to establish the association between some respondents' factors and practice of exclusive breastfeeding, prior breastfeeding and skill of position and attachment at breast. Statistical significance was set at P value less than 0.05.

Ethical considerations

Ethical approval for the study was obtained from the institute Ethics Committee. The research was conducted in accordance with the World Medical Association Declaration of Helsinki. The study participants were given adequate information on the purpose and modality of the study before enrolment, and those who agreed to participate in the study signed a written consent form. The data set was anonymised to ensure privacy.

RESULTS

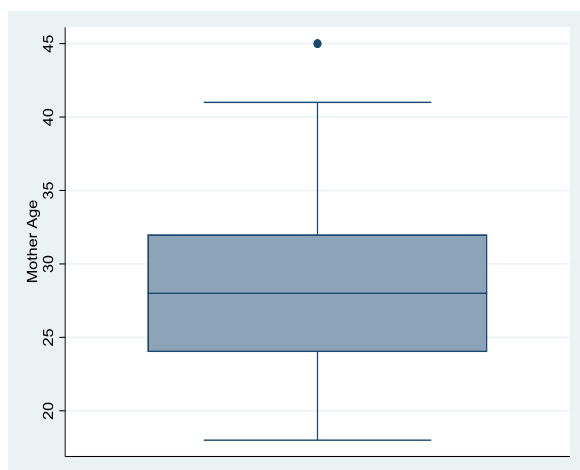


Fig: 1 Box plot depicting enrolled Post Natal Mother's Age

Total 443 females were enrolled in this study. Their demographic details are mentioned in Table1. Median age of

mothers who agreed to participate in this study was 27.8(Range 18 to 45 years, IQR- 24 to 32 years) (Fig1). Four hundred and thirty-seven mothers (98.6%) believed that mother's own milk (MOM) is the best milk for new born and infant, while 6 mothers believe newborn should be fed animal milk after birth. Cow milk is preferred choice among animal milk, only 1 mother preferred to give goat milk to her neonate.

Table: 1 Demographic details

Demographic details, N=443	Number (%)
Residence	
Rural	292(66)
Urban	151(34)
Education	
Uneducated	5(1.1)
Class 1-5	4(1)
Class 6-10	43(9.7)
Class 11-12	106(23.9)
Graduate	198(44.7)
Post graduate	87(19.6)
Parity	
Primi	221(49.9)
Gravida 2(G2)	188(42.4)
Multi	34(7.7)
Ante-Natal Check-up (ANC) visits	
Unbooked	18(3.3)
<4	154(35%)
>4	271(61.7)
Source of information on benefits of BF	
Doctor	318(71.7)
Staff nurse	326(73.5)
ASHA	100(22.5)
AWW	36(8)
ANM	3(0.6)
TV/Radio	15(3.3)
Newspaper	1(0.02)
Multiple sources	297(67)
Mode of delivery	
Caesarian	123(27.8)
Vaginal	320(72.2)

Among 188 G2 mothers 178(94.7%) had breast fed, while 33 of 34(97%) multipara had breastfed their earlier born. There was no association between age (p=0.763), residence (p=0.228), education (p=0.65), gravid (p=0.557), ANC visits (p=0.64), and skill (p=0.451) with prior breastfeeding (Table2). Duration of BF ranged from 1 month till more than 2 years among 211 mothers who had breastfed their earlier born,64(30.3%) had breastfed for more than 2 years, 107(50.7%) had breast fed for more than one year but stopped before 2 years, 9 (4.2%) had stopped BF before 6 months, 31(14.8%) continued till 1 year. Most mothers affirmed support from

family members on BF, majority 254(57.4) had support from husband and mother-in-law, 38% had support from either husband or mother-in-law. Eighteen mothers also reported support from parents and relatives. There was no association between support for BF and exclusive BF for minimum 6 months, with p value 0.733. Similarly, no association was found between age of mother (p=0.148), residence (p=0.685), education (p=0.371), parity (p=0.519). More number of antenatal (ANC) visits and correct skill of latching infant on breast were significantly associated with better exclusive BF rates (Table3).

Table 2 Association of Prior Breastfeeding with variables

Prior Breastfeeding(N=222)					
Predictor variable	Yes, N (%)	No, N (%)	P value		
Age					
<25 years	39	17.5	3	1.35	0.763
25-35 years	153	69	7	3.15	
>35 years	19	8.6	1	0.45	
Residence					
Rural	134	60.3	5	2.25	0.228
Urban	77	34.7	6	2.7	
Education					
Uneducated	3	1.35	0	0	0.65
Class 1-5	3	1.35	0	0	
Class 6-10	20	9	1	0.45	
Class 11-12	42	19	0	0	
Graduate	102	46	7	3.15	
Post graduate	41	18.5	3	1.35	
Gravida					
G2	178	80.2	10	4.5	0.557
Multi	33	14.8	1	0.45	
ANC visits					
>=4	166	74.8	8	3.6	0.64
<4	45	20.2	3	1.35	
Skill (Positioning and attachment)					
Skill correct	156	70.3	7	3.1	0.451
Skill incorrect	55	24.7	4	1.8	

Among 386 mothers who had initiated breast feeding in this study, 301(78%) had initiated breast feeding within one hour of birth, while 85 mothers had delayed initiation. Twenty mothers (5%) initiated BF after delay of 24 hours, while 65 mothers (16.8%) delayed BF for more than 2 hours. Fifty-seven mothers did not initiate breast feeding at the time of interview. Early initiation was higher among vaginal (50.34%) compared to Caesarean (25.7%) births (p=<0.05)

Four hundred twenty-seven mothers replied to question on time gap after Caesarean delivery when BF should be

initiated, 88(20.6%) answered within one hour of surgery, while majority 333 (78%) replied to wait till mother is ready to BF anytime between 2 to 24 hours post-surgery. Six mothers (1.5%) wanted to postpone BF till day 2 of life. Only 26 mothers wanted to discard colostrum, while 94% understand its importance and want to give the newborn the first milk. Ninety eight percent mothers agreed infant should be fed every 2-3 hours, including night feeds. Ninety-one percent mothers have the knowledge to BF infant even when the mother is sick after following all precautions, only 9% wanted to shift to alternatives.

Table 3: Association of Exclusive Breastfeeding more than 6 months with variables

Exclusive Breast feeding>6 months (N=193)					
Predictor variable	Yes, N(%)	No, N(%)	P value		
Age					
<25 years	36	18.6	0	0	0.148
25-35 years	137	7.1	1	0.5	
>35 years	18	9.3	1	0.5	
Residence					
Rural	122	63.2	1	0.5	0.685
Urban	69	35.8	1	0.5	
Education					
Uneducated	3	1.5	0	0	0.371
Class 1-5	3	1.5	0	0	
Class 6-10	18	9.3	1	0.5	
Class 11-12	39	20.2	0	0	
Graduate	86	44.5	0	0	
Post graduate	42	21.7	1	0.5	
Gravida					
G2	158	81.9	2	1	0.519
Multi	33	17.1	0	0	
ANC visits					
>=4	152	78.8	0	0	0.006
<4	39	20.2	2	1	
Support for BF					
Yes	169	87.5	23	12	0.733
No	1	0.5	0	0	
Skill (Positioning and attachment)					
Skill correct	142	73.5	0	0	0.01
Skill incorrect	49	25.4	2	1	

As an alternative to Breast milk, when mothers perceive BF volume to be insufficient for her infant, 402(91%) still prefer to increase suckling on breast by infant to increase output, five percent prefer to switch over to powder milk available in chemist shops, remaining 20(4%) prefer to give animal milk, preference for cow milk was higher compared to buffalo milk. In response to question on whether mother will give water to infant before 6 months, 96% declined. Most mothers prefer to breast feed for more than 6 months, 216(49%) prefer to

BF more than 2 years, and 109(43%) for minimum 12 months, while only 35 mothers wanted to stop BF after 6 months. Four hundred thirty-four mothers (98%) have knowledge to start adequate nutritious complementary feeding to infant at 7 months of age, only 2% wanted to wait till 1 year.

Skill observation showed only 178 mothers (40%) observed correct positioning and attachment of infant on breast, while 60% mothers were counselled for improvement. There was significant association between parity, and age of mother with correct skill of breast feeding, primi mothers were facing problem with latching the neonates on Breast, $p < 0.01$ (Table 4)

Table 4: Association of Skill (positioning and attachment) of infant on Breast with variables

Breastfeeding Skill Assessment (N=443)					
Predictor variable	Yes, N (%)	No, N (%)	P value		
Age					
<25 years	44	10	81	18.3	0.009
25-35 years	130	29.3	163	36.8	
>35 years	4	0.9	21	4.7	
Residence					
Rural	111	25	67	15.12	0.196
Urban	181	40.9	84	19	
Education					
Uneducated	3	0.68	2	0.45	0.56
Class 1-5	3	0.68	1	0.23	
Class 6-10	15	3.4	28	6.8	
Class 11-12	41	9.26	65	14.7	
Graduate	78	17.6	120	27	
Post graduate	38	8.6	49	11	
Gravida					
Primi	15	3.4	206	46.5	0.000
G2	131	29.5	57	12.8	
Multi	32	7.2	2	0.45	
ANC visits					
>=4	145	32.7	33	7.5	0.242
<4	204	46	61	13.8	
Breastfed Newborn at time of interview					
Yes	156	35.2	22	5	0.00
No	55	12.4	210	47.4	

DISCUSSION

WHO and UNICEF advocate the initiation and promotion of breastfeeding for the health of mother and child, for significant role in decreasing the IMR.⁽²⁾ Especially in developing and populous countries like India, the immense benefits attributable to BF cannot be undermined. The government of India has launched the MAA programme for promotion of BF appreciating the fact that a lot has to be

done to achieve exclusive breastfeeding rate more than 80%.⁽⁵⁾ This research aimed to study the current scenario on BF in hilly state of North India so as to put concrete efforts to achieve this goal. Although 66% of study participants had a rural background but majority of them were well educated. Promotion of breastfeeding by doctors, nurses, community health workers like ASHA workers have resulted in quite good knowledge among mothers on BF in our study. In fact 98.65% mothers knew importance of breast milk as the best food for their new born, and 94% believed that colostrum should not be discarded. Majority of the mothers (92%) wanted to continue breastfeeding for more than one year. With this background we know that we can further promote breastfeeding and decrease the IMR if we are able to identify the social, cultural, professional and health impediments which hamper the initiation and continuation of BF.

According to Infant and Young Child Feeding (IYCF, 2006) guidelines, Government of India recommends that initiation of breastfeeding should begin immediately after birth, preferably within 1 hour.⁽⁹⁾ Early initiation of breastfeeding and exclusive breastfeeding of children till 6 months are considered the most decisive indicators for assessing breastfeeding practices. In the present study 68% of enrolled mothers had initiated breastfeeding within one hour and a further 13.5% had initiated it within the next six hours. Among 222 mothers, 95% mothers had breast fed their earlier born. Kumar B et al too had reported 75.69% mothers breastfeeding the baby within 2 hours of birth.⁽¹⁰⁾ As per United nations children's fund (UNICEF) only 45% of world's newborn and 42% of newborn in South-Asia are put to breast within an hour of birth.⁽¹¹⁾ As per NFHS-5 data for Himachal Pradesh only 41% of children below 3 years were initiated on breast feeding within 1 hr.⁽⁶⁾ Our study showed progress which perhaps may be attributed to better education and knowledge from multiple sources among enrolled

mothers who have opted for institution birth.

Colostrum through the transfer of maternal leukocytes and immunoglobulins has a role in the development of the infant T cell repertoire and early immune responses in the periphery and gut-associated lymphoid tissue.⁽¹²⁾ Ninety-eight percent of our mothers knew breast milk was the best food for their new born and 94% gave colostrum to their babies. Sushma et al⁽¹⁰⁾ and Rahalkar et al⁽¹³⁾ had reported more than 90% newborn babies received colostrum. Improved knowledge on colostrum feeding implies that early breastfeeding can be achieved in a larger proportion of births. Custom practices like “top feeding”, feeding of honey or diluted animal milk before breastmilk counters much of the knowledge and positive attitudes these women have if they are not supported by husband and family for early initiation of BF and to continue breastfeeding because of problems like flat or inverted nipples, postpartum depression, pain after delivery/ Caesarean section or because of job or sickness of mother.

The improvement of BF practice is not the prerogative of a single service; all the institutional actors around mother and child (from before conception, throughout the birth process, and the first year of life) play a decisive role.⁽¹⁴⁾ In our study, most of the enrolled mothers were receptive and accessible to counselling regarding breastfeeding when provided by doctors and nurses. It was to the tune of 71.7 % and 73.5% respectively. A significant positive association between history of ANC registration and prevalence of exclusive breastfeeding was observed in present study. Mothers who had more than 4 antenatal visits (78.8%) during the pregnancy were more likely to go for exclusive breastfeeding than mothers who had less than 4 visits (20.2%) ($p= 0.006$). Srivastava et al⁽¹⁵⁾ and Choudhary et al⁽¹⁶⁾ also reported higher exclusive BF rates among mothers who had three or more ANC visits. This clearly signifies importance of

counselling of mother by health care providers from before conception till the birth of the baby to promote breastfeeding. We need to augment and sustain these efforts with more focus on improving quality of ANC, with breast feeding and post-natal care education so that abandonment of breastfeeding due to various factors can be curtailed.

Most mothers in our study prefer to breast feed for more than 6 months, 216(49%) prefer to BF more than 2 years, and 109(43%) for minimum 12 months. This study also found that 98% mothers were aware to start adequate nutritious complementary feeding to infant at 7 months of age, only 2% wanted to wait till 1 year. Earlier studies by Vijyalakshami et al⁽¹⁷⁾ and Swetha et al⁽¹⁸⁾ reported low rates of timely complementary feeding from south India. This study adds that mothers have become more knowledgeable and aware on nutrition of their infants, which is good.

Limitations

The major limitation of this study is, it being a cross section hospital-based interview conducted over 6 months period among non-randomly selected postpartum mothers with a small sample size, it cannot be generalized to entire population of same region. There are chances respondents may give socially desirable responses, as majority of the participants must have received prior ante-natal care and BF counselling. Further qualitative research with larger sample and focus group interviews among community is required to identify barriers to promote breast feeding among mothers, with greater understanding of the social and cultural beliefs in postpartum child health care practices. However, since interview was conducted prior to discharge of mother, thus preventing recall bias. So study findings may be helpful to the clinicians and nursing professionals in designing the interventions to promote breastfeeding practices.

CONCLUSIONS

The present study concludes that the mothers have a very good knowledge and positive attitude toward both early initiation and exclusive breast feeding. Our findings also show that the rate of early initiation and exclusive breast feeding is increasing among Indian mothers. Prenatal education to mothers and fathers on breast feeding will help improve BF, and reduce IMR further. We also recommend strengthening the public health education campaigns to promote breast feeding.

Acknowledgement

We acknowledge the support of Miss Nidhi Dutta, lactation counsellor at KNH, Shimla for collection of online data. We also thank the mothers and infants who consented to participate in the study.

Conflict of Interest: None

Source of Funding: None

Ethical Approval: Approved

REFERENCES

1. Wallingford J. Breastfeeding in the 21st century. *Lancet*. 2016 May; 387 (10033):2087.
2. WHO | The World Health Organization's infant feeding recommendation [Internet]. [cited 2021 May 15]. Available from: https://www.who.int/nutrition/topics/infantfeeding_recommendation/en/
3. Walters D, Eberwein JD, Sullivan LM, D'Alimonte MR, Shekar M. Reaching the Global Target to Increase Exclusive Breastfeeding: How Much Will It Cost and How Can We Pay for It? *Breastfeed Med*. 2016 Oct;11(8):413-5.
4. WBTi [Internet]. [cited 2021 May 30]. Available from: <https://worldbreastfeedingtrends.org/>
5. MAA (Mothers' Absolute Affection) Programme for Infant and Young Child Feeding | National Health Portal Of India [Internet]. [cited 2021 May 30]. Available from: [https://www.nhp.gov.in/maa-\(mothers'-absolute-affection\)-programme-for-infant-and-young-child-feeding_pg](https://www.nhp.gov.in/maa-(mothers'-absolute-affection)-programme-for-infant-and-young-child-feeding_pg)
6. National Family Health Survey (NFHS-5) [Internet]. [cited 2021 May 15]. Available from: http://rchiips.org/nfhs/factsheet_NFHS-5.shtml
7. National Family Health Survey [Internet]. [cited 2021 May 15]. Available from: <http://rchiips.org/nfhs/nfhs4.shtml>
8. NavjaatShishu Suraksha Karyakram (NSSK) | National Health Portal Of India [Internet]. [cited 2021 May 15]. Available from: [https://www.nhp.gov.in/navjaatshishu-suraksha-karyakram-\(nssk\)_pg](https://www.nhp.gov.in/navjaatshishu-suraksha-karyakram-(nssk)_pg)
9. Tiwari S, Bharadva K, Yadav B, Malik S, Gangal P, Banapurmath CR, et al. Infant and young child feeding guidelines, 2016. *Indian Pediatr*. 2016 Aug 10;53(8):703-13.
10. Kumar B, Bose T, Das S, Gupta AK, Kumar A, Bhandari A. An assessment of knowledge and practices of breastfeeding among mothers having child less than 2 years of age in a city of central Uttar Pradesh, India. *Int J Contemp Pediatr*. 2020 Dec 23;8(1):48-54.
11. From the First Hour of Life: Making the case for improved infant and young child feeding everywhere - World | ReliefWeb [Internet]. [cited 2021 May 29]. Available from: <https://reliefweb.int/report/world/first-hour-life-making-case-improved-infant-and-young-child-feeding-everywhere>
12. Laouar A. Maternal Leukocytes and Infant Immune Programming during Breast feeding. *Trends Immunol*. 2020 Mar;41 (3):225-39.
13. Rahalkar AA, Phalke DB, Phalke VD. A study of breastfeeding and complementary feeding practices with emphasis on misconceptions amongst the women with under two year children in rural area. *Int J Med Res Heal Sci*. 2014;3(4):851-55.
14. Bizon AMBL, Giugliani C, Castro de Avilla Lago J, Senna AFK, Martins ACM, Jezus Castro SM, et al. Combined pro-breastfeeding practices are advantageous in facilities providing maternity and newborn services. *Matern Child Nutr*. 2019 Oct 30;15(4) e-12822-30.
15. Srivastava NM, Awasthi S. Breastfeeding practices for newborns among urban poor in Lucknow, northern India: A prospective follow-up study. *Clin Epidemiol Glob Heal*. 2014 Aug;2(2):66-74.
16. Choudhary A, Bankwar V, Choudhary A. Knowledge regarding breastfeeding and

- factors associated with its practice among postnatal mothers in central India. *Int J Med Sci Public Heal.* 2015;4(7):973-76.
17. Vijayalakshmi P, Susheela T, Mythili D. Knowledge, attitudes, and breast feeding practices of postnatal mothers: A cross sectional survey. *Int J Health Sci (Qassim).* 2015 Oct;9(4):364-74.
18. R S, Ravikumar J, Rao R. Study of breastfeeding practices in coastal region of South India: a cross sectional study. *Int J Contemp Pediatr.* 2014;1(2):74-8.
- How to cite this article: Singh R, Sood M, Roach V et.al. A cross sectional survey on knowledge, attitude and breast-feeding practices among postnatal mothers delivering at tertiary care hospital in North India. *International Journal of Science & Healthcare Research.* 2021; 6(2): 451-458. DOI: <https://doi.org/10.52403/ijshr.20210445>
