



Research Article

AWARENESS AND PERCEPTION TOWARDS BREASTFEEDING AMONG NURSING STUDENTS OF TERTIARY CARE CENTRE IN NEW DELHI

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Abstract: *Poor breastfeeding and complementary feeding practices are widespread. The beneficial effect of breastfeeding depends on correct breastfeeding practices like timely initiation, colostrum feeding, and avoidance of prelacteal feeding. Breastfeeding support from healthcare professionals can be effective in influencing a mother's decision to initiate and maintain breastfeeding. To assess knowledge, and perception regarding breastfeeding and complementary feeding and to identify various misconceptions about breastfeeding among nursing students. This descriptive, cross-sectional study was conducted among 120 Nursing students by the Department of Community Medicine, NDMC Medical College and Hindu Rao Hospital Delhi, India. The information was collected by interviewing the nursing students with the help of pretested, predesigned proforma. Statistical Package for Social Sciences (SPSS), version 21 was used for analysis. In this study, significance was set at $p < 0.05$. The majority of nursing students belong to the 18- 24 years age group with a mean age of 20.95 ± 1.37 (mean \pm SD) years. The majority of the participants (71.7%) had adequate knowledge concerning exclusive breastfeeding. Most of the participants were aware of good attachment (77.5%) and proper positioning (89.2%) for breastfeeding. Lack of knowledge and various misconceptions about breastfeeding were reported. Nursing students need to receive adequate breastfeeding training so that they can provide the necessary support to the mothers for the betterment of the newborn.*

Keywords: *Breastfeeding, complementary feeding, infant nutrition, knowledge, nursing students, prelacteal feeds.*

Received: June 24, 2024

Accepted: February 26, 2025

1. Introduction

Nutrition plays an important role during a child's first year of life and is essential to ensure the growth and development of the child. Correct and adequate breastfeeding during the first 2 years of life plus complementary feeding starting from the first 6 months of life are the critical component of care in childhood. It is a major determinant of short- and long-term health outcomes in individuals, and hence of the social and economic development of communities and nations [1].

“A newborn baby has only three demands. These are warmth in the arms of his/her mother, food from the breasts, and security in the knowledge of her presence; breastfeeding satisfies all three” [2].

Complementary foods are often introduced too early or too late and are often nutritionally inadequate and unsafe. From the age of 6 months, an infant's need for energy and nutrients exceeds what is provided by breast milk, and complementary feeding becomes necessary to fill the energy and nutrient gap [3].

Poor breastfeeding and complementary feeding practices are widespread. Worldwide, it is estimated that only 34.8% of infants are exclusively breastfed for the first 6 months of life, with the majority receiving some other food or fluid in the early months [4]. In India under-five mortality and infant mortality rates are 29.1 and 26 per 1000 live births, respectively and almost 50% of it is attributable to malnutrition [5]. Optimal breastfeeding practices include exclusive breastfeeding for the first six months of life, early initiation of breastfeeding within one hour of life, and continued breastfeeding for up to and beyond two years of age [6]. In India, according to NFHS 5 approximately 64% of children under 6 months of age are exclusively breastfed and 46% of children aged 6-8 months receive solid or semi-solid food and breastmilk [7]. Compared to infants who initiated breastfeeding within 1 h after birth, infants who initiated breastfeeding 2–23 h after birth had a 33% greater risk of neonatal mortality, and infants who initiated breastfeeding 24 h after birth had a 2.19-fold greater risk of neonatal mortality [8]. Despite lots of awareness and other activities regarding breastfeeding, very little progress has been recorded in recent studies. It has been shown that only 30-40% of mothers started early breastfeeding within 1 hour and 60-70% have done exclusive breastfeeding for 6 months [9,10]. Suboptimal breastfeeding or not breastfeeding is associated with lower intelligence and economic losses of about \$302 billion annually or 0.49% of the world's gross national income [11].

A mother's decision to initiate and maintain breastfeeding is influenced by many factors including the practical and emotional support, and encouragement from health professionals. A Cochrane Review reported that breastfeeding support from health professionals can be effective in extending the duration of breastfeeding [12]. It is therefore important that nursing students acquire knowledge about breastfeeding and develop skills to support and provide appropriate care to pregnant women, and to mothers with infants, in order to support mothers to breastfeed [13].

Nurses being the largest group of professionals play an important role in educating and supporting breastfeeding activities as their clinical experience and also in their personal practice as potential mothers. In a few studies it has been seen that 80% of nurses have good knowledge towards breastfeeding, but very less have a positive attitude toward breastfeeding and fewer have good intentions for breastfeeding in the future [14].

1.1. Rationale of study

Since health professionals are responsible for planning and implementing newborn feeding practices, it is necessary they have adequate academic knowledge about them, which makes it possible to overcome personal beliefs so that they can implement scientifically based guidelines that are beneficial to babies. Thus, the present study aims to assess the knowledge and perception regarding breastfeeding and complementary feeding among nurses. This study could also serve as a resource to identify gaps in nursing training, which is an important step toward improving the work practices of future health professionals.

2. Materials and Methods

2.1. Objectives and Design

This study is designed as descriptive and cross-sectional to assess knowledge, and perception regarding breastfeeding and complementary feeding and to identify various misconceptions about breastfeeding among nursing students.

2.2. Participants

The institution-based cross-sectional study was conducted from March 2024 to May 2024. The study was conducted among nursing students of North Delhi Municipal Corporation Medical College and Hindu Rao Hospital.

Inclusion criteria: All the students willing to participate and present on the day of study were included.

Exclusion criteria: Nursing students who were not willing to give consent were excluded from the study.

Four nursing batches were considered for the study. Each batch consisted of 40 students. The complete universe of students was taken with informed written consent. The purpose of the study was explained prior to the data collection. The interview was carried out in a confidential, non-obligatory, and non-judgmental manner. The anonymity of the students was ensured and utmost confidentiality of the information collected was maintained.

We stratified undergraduate nursing students according to the year of admission and enrolled at least 30-35 students from each stratum. We had fixed the criteria that at least 80-90% of students should be present in each class. Students were chosen randomly using computer-generated random numbers by giving a serial number to each present student. Single attempts were made to collect data from each admission year student.

2.3. Data Collection

The questionnaire form consisted of three parts. The first part of the questionnaire included 8 questions about the socio-demographic characteristics of the students (Age, gender, religion, marital status, socioeconomic class, semester). The second part of the questionnaire included 19 questions consisting of knowledge regarding breastfeeding and complementary feeding. The questions in the second part were prepared by professionals from the field. While preparing the questions in the second part, the Infant Young Child Feeding (IYCF) practices questionnaire given by WHO was used [15]. In the last part of the questionnaire, 11 questions consisting of perception and future intentions toward knowledge regarding breastfeeding and complementary feeding were asked to students. While preparing the questions in the third part, IYCF-E toolkit by the Centre for Disease Control and Prevention was used [16]. The study tool was pre-tested, pre-designed, and semi-structured questions were validated. From the responses/options given, the correct answers were counted as a student had to select one correct answer from the options provided. This was followed by a lecture and interactive session on the same topic.

2.4. Ethical considerations

The Institutional Ethics Committee gave its clearance before data collection (North MDC Medical College and Hindu Rao Hospital of the Dean, date:15.02.2024 and approval number: 2024/256). Permission from the principal of the nursing college was taken. Students gave both verbal and written consent. The Informed Consent Form was used to obtain written consent and contained information about the study's voluntary nature, participants' right to withdraw at any time, and the confidentiality of their names. The principles of the Helsinki Declaration were followed in the conduct of this study. Advice regarding correct breastfeeding activities and complementary feeding was given.

2.5. Operational Definitions

1. Early Initiation of Breastfeeding means breastfeeding all normal newborns (including those born by cesarean section) as early as possible after birth, ideally within the first hour. Colostrum, the milk secreted in the first 2-3 days, must not be discarded but should be fed to newborns as it contains high

concentrations of protective immunoglobulins and cells. No pre-lacteal fluid should be given to the newborn [17].

2. Exclusive breastfeeding for the first 6 months means that an infant receives only breast milk from his or her mother or expressed breast milk, and no other liquids or solids, not even water. The only exceptions include the administration of oral rehydration solution, oral vaccines, vitamins, minerals supplements, or medicines [17].

3. Complementary feeding is the process starting after 6 months of life when breast milk alone is no longer sufficient to meet the nutritional requirements of infants, and therefore other foods and liquids are needed, along with breast milk. The period is between 6 and 24 months, and by 6 months infants are developmentally ready to transition to semi-solids and progress to solid foods with advancing age [18].

4. Attachment for Breastfeeding

A baby needs to be well attached for successful breastfeeding so that he or she can suckle effectively. Difficulties often occur because a baby does not take the breast into his or her mouth properly and so cannot suckle effectively. All healthcare professions need to understand the correct technique of attachment for breastfeeding to make mothers' experiences more comfortable and less painful.

Good attachment is essential as shown in Figure 1. The points to notice are: much of the areola and the tissues underneath it, including the larger ducts, are in the baby's mouth; the breast is stretched out to form a long 'teat', but the nipple only forms about one-third of the 'teat'; the baby's tongue is forward over the lower gums, beneath the milk ducts (the baby's tongue is cupped around the sides of the 'teat'); the baby is suckling from the breast, not from the nipple. As the baby suckles, a wave passes along the tongue from front to back, pressing the teat against the hard palate, and pressing milk out of the sinuses into the baby's mouth from where he or she swallows it. The baby uses suction mainly to stretch out the breast tissue and to hold it in his or her mouth. The oxytocin reflex makes the breast milk flow along the ducts, and the action of the baby's tongue presses the milk from the ducts into the baby's mouth. When a baby is well attached his mouth and tongue do not rub or traumatize the skin of the nipple and areola. Suckling is comfortable and often pleasurable for the mother. She does not feel pain.

Poor attachment as demonstrated in Figure 2. The points to notice are only the nipple is in the baby's mouth, not the underlying breast tissue or ducts; the baby's tongue is back inside his or her mouth and cannot reach the ducts to press on them. Suckling with poor attachment may be uncomfortable or painful for the mother and may damage the skin of the nipple and areola, causing sore nipples and fissures (or "cracks"). Poor attachment is the most common cause of sore nipples and may result in the inefficient removal of milk and the low supply [19].

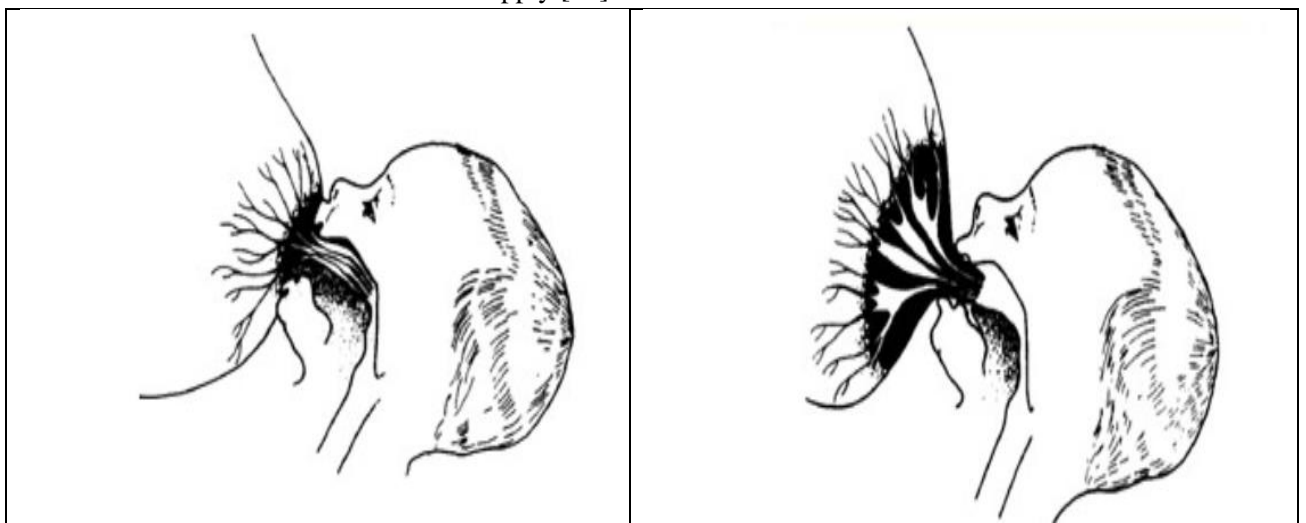


Figure 1. Good attachment

Figure 2. Poor attachment

2.6. Data Analysis:

The data were analyzed by Microsoft Office Excel and Statistical Package for Social Sciences (SPSS 21). After statistical analysis, the findings of the study were presented by tables and figures. Descriptive results of the study were given by percentages. A chi-square analysis was performed to examine the relationship between the expected qualitative variables. A p-value of less than 0.05 was taken to declare a difference “significant”.

3. Results

The sociodemographic characteristics of nursing students contributed to the study were examined and the results were given in Table 1.

Table 1: Distribution of the sociodemographic characteristics of academic nursing students (n=120)

Sociodemographic Characteristics	Number (n=120)	%
Age distribution (age in years)		
18-20	55	45.83
21-23	62	51.7
24	3	2.5
Religion		
Hindu	112	93.3
Muslim	3	2.5
Sikh	5	4.2
Type of family		
Nuclear	98	81.7
Joint	22	18.3
Socioeconomic status		
Class I	44	36.7
Class II	68	56.7
Class III	7	5.8
Class IV	1	0.8
Semester/year of nursing course		
1 st year	25	20.8
2 nd year	35	29.2
3 rd year	33	27.5
4 th year	27	22.5

The socio-demographic and educational characteristics of these nursing students have been summarized in Table 1. It shows that a majority of them belong to the 18- 24 years age group with a mean age of 20.95 ± 1.37 (mean \pm SD) years, and the sample comprised of students from first to fourth years of education. All the students were girls and unmarried. The majority of students (93.3%) were from Hindu families. Most of the participants belonged to the nuclear family. Out of 120 nursing students, 68 belonged to class II socioeconomic status according to the modified B.G Prasad classification [20] (Table 1).

Knowledge regarding breastfeeding among nursing students was asked of the nursing students and the results are given in Table 2.

Table 2: Knowledge regarding breastfeeding among nursing students (n=120)

Variable	Frequency(n=120)	%
Initiation of breastfeeding should be done:		
a. Within one hour of birth	87	72.5
b. After one hour of birth	33	27.5
Do you know about "colostrum"?		
Yes	118	98.3
No	2	1.7
Is Colostrum better than any pre-lacteal feed?		
Yes	103	85.8
No	17	14.2
*Reason of giving Colostrum to babies is/are?		
a. It fights against infections and provide immunity	116	
b. It is easily digestible by babies	11	
c. Any pre-lacteal feed can cause harm to new born babies	12	
Which prelacteal feed is good according to you, for newborn babies?		
a. Honey	26	21.7
b. Ghutti	56	46.7
c. Ajwain water	5	4.1
d. Other if any	6	5
e. Nothing	27	22.5
Do you know the concept of exclusive breastfeeding?		
Yes	86	71.7
No	34	28.3
During exclusive breastfeeding, water can be given to infants?		
Yes	4	3.3
No	101	84.2
Don't know	15	12.5
Which milk/ feed is most commonly given, if breast supply is not sufficient or nil?		
a. Cow's milk	44	36.7
b. Other animal milk	1	0.8
c. Infant formula milk	67	55.8
d. Don't know	8	6.7
Breastfeeding should be continued till		
a. 6 months	35	29.2
b. 6 months-1 year	41	34.2
c. 1-2 year	08	6.7
d. Till 2 years	34	28.3
e. Don't know	2	1.6
Have you heard of good attachment for breastfeeding?		
Yes	93	77.5
No	19	15.8
Don't know	8	6.7
Have you heard of proper positioning for breastfeeding?		
Yes	107	89.2
No	12	10
Don't know	1	0.8

*Multiple responses

Considering the results of Table 2 majority (72.5%) of participants were aware of knowledge regarding initiation of breastfeeding within one hour of birth. Most of the participants were aware that colostrum was better than any pre-lacteal feed. Overall majority of the participants (71.7%) had adequate knowledge concerning exclusive breastfeeding. Most nursing students reported that promoting breastfeeding was important for infant health, and most students demonstrated knowledge about the advantages of breastfeeding, such as “breast milk provides stronger immune protection for the child than formula milk”.

There was a lack of knowledge regarding prelacteal feeds that they are good for newborns. Only 22.5 % of students agreed that no prelacteal feeds were to be given. Only 28.3% of students knew that breastfeeding should be continued till 2 years. There was a lack of knowledge regarding the duration of breastfeeding. This increases the chances of infection in babies. Awareness of the health benefits of colostrum should be increased by further breastfeeding education and support. Most of the participants were aware of good attachment (77.5%) and proper positioning (89.2%) for breastfeeding (Table 2).

Knowledge regarding Complementary feeding among nursing students was examined and the results were presented in Figure 3.

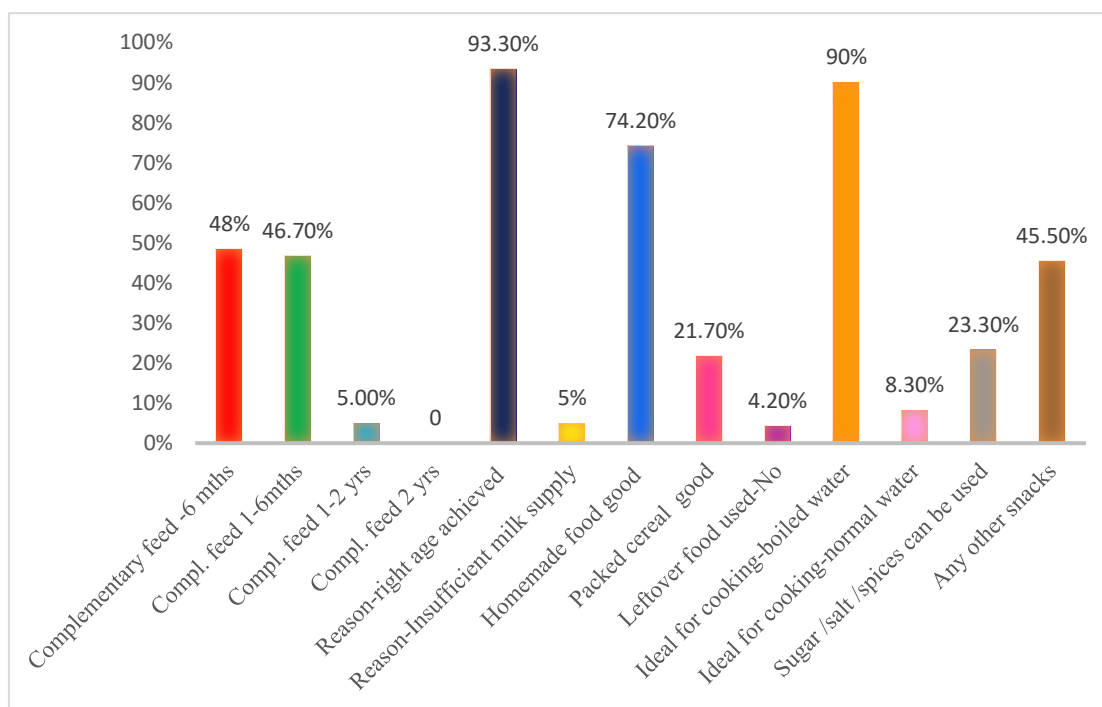


Figure 3: Knowledge regarding Complementary feeding among nursing students

Considering Figure 3 less than half of the students (46.7%) were of the opinion regarding complementary feeding started at a period of 6 months up to 1 year. Lack of knowledge regarding initiation of complimentary feeding was seen in nursing students. Majority (112) of the students had knowledge regarding the reason for starting complementary feed when the right age was achieved and body dietary needs has increased. Majority of students (74.2%) had knowledge about homemade food is good for child as complementary feed. Only 2 students were of the opinion that both homemade and packed food can be used. 90% participants marked boiled water as ideal for cooking complementary feed. Most of the nursing students (73.3%) knew that there is no need of sugar, salt or spices for preparation of child’s food. Lack of knowledge was seen regarding snacks. More than half of the nursing students (49.2%) were of the opinion that no other snack is required for the child.

Perceptions regarding breastfeeding and complementary feeding were asked to the nursing students and the results are given in Table 3.

Table 3: Perception regarding breastfeeding and complementary feeding (n=120)

Variable	Frequency(n=120)	%
Mothers should breastfeed their babies within 1 hour after delivery		
Yes	104	86.7
No	1	0.8
Don't know	15	12.5
Only Breast milk is not sufficient for a baby in the first six months of life		
Yes	16	13.3
No	99	82.5
Don't know	5	4.2
Water should be given to babies below 6 months of age.		
Yes	19	15.8
No	80	66.7
Don't know	21	17.5
Herbs/herbal drinks are beneficial to the health of babies especially in the first 6 months		
Yes	10	8.3
No	99	82.5
Don't know	11	9.2
Formula feeding is healthier and supplies more nourishment than breastfeeding for babies below 6 months of age		
Yes	10	8.3
No	93	77.5
Don't know	17	14.2
The size of the breast determines the amount of breast milk produced		
Yes	33	27.5
No	70	58.3
Don't know	17	14.2
Breastfeeding should be continued when semi-solid or solid foods are introduced		
Yes	76	63.3
No	33	27.5
Don't know	17	9.2
Breastfeeding in the public should be discouraged because that creates an uncomfortable situation		
Yes	16	13.3
No	97	80.8
Don't know	7	5.9
Breastfeeding helps a mother to make a strong bond with her baby.		
Yes	119	99.2
No	0	0
Don't know	1	0.8
Husband/Partner should play a supportive role in breastfeeding		
Yes	109	90.8
No	4	3.3
Don't know	7	5.9
As a woman, would you prefer breastfeeding personally?		
Yes	109	90.8
No	0	0
Don't know	11	9.2

Considering Table 3 a majority (86.7%) of the students perceived that mothers should breastfeed their babies within 1 hour after delivery. 13.3% of students had a misconception that breast milk is not sufficient for a baby in the first six months of life. 10 students out of 120 had misconceptions regarding herbs/herbal drinks that they are beneficial to the health of babies, especially in the first 6 months. 17.5%

of students had no perception regarding water whether to be given or not to babies before 6 months of age.

8.3% of nursing students perceived that formula feeding is healthier and supplies more nourishment than breastfeeding for babies below 6 months of age. 33 students out of 120 had misconceptions regarding the size of the breast which determines the amount of breast milk produced. The majority (99.2%) of the participants perceived that breastfeeding fosters a close bond between the mother and child. Healthcare professionals including doctors and nurses should encourage it. More than half of the participants (82%) wanted their future child to be breastfed (Table 3).

4. Discussion

In this study knowledge level of nursing students was assessed given breastfeeding and complementary feeding. Nursing students need to receive adequate breastfeeding training so that they can provide the necessary support to the mothers for the betterment of the newborn.

Our study sample was formed only by female participants. It is a normal observation that the nursing profession is generally feminized in this type of study. It was difficult to compare as available literature in view of nursing students acquiring breastfeeding knowledge is scarce. Despite this, some of our results are similar to those seen in other research works.

The study showed the majority of the students (71.7%) had adequate awareness regarding exclusive breastfeeding, contrary to a study conducted in Egypt [21] where only 19.8% of participants had adequate knowledge. Exclusive breastfeeding for six months was also known by nursing students of Karachi (76%) [22]. This indicates the importance of breastfeeding education and its influence in improving nursing students' knowledge and their future behaviors. Breastfeeding campaigns can be encouraged to promote exclusive breastfeeding for six months.

In the present study, participants knew the benefits of breastfeeding for both baby and mother and the importance of the early initiation of breastfeeding.

There was a lack of knowledge regarding the duration of breastfeeding. Only 28.3% of the nursing students recommended that mothers should continue breastfeeding for 2 years. In contrast in a similar study conducted by Altwalbeh [23] where 79% of participants knew the duration of breastfeeding. Health education sessions regarding breastfeeding practices can have a positive influence.

Only 22.5 % of students agreed that no prelacteal feeds are good for newborns. Prelacteal feeds like gold rubbed in water, honey, distilled water, honey, ghutti, ajwain water, glucose, etc., should not be given. These items will satisfy the thirst and will reduce the vigor to suck and may lead to diarrhea and helminthic infestation. Due to a lack of knowledge regarding prelacteal feeds newborn is often deprived of colostrum which is rich in protein and immunoglobulins. Lack of knowledge and various misconceptions about breastfeeding were reported. Snacks like porridge, biscuits, mashed bananas, fruit juices, and soups, can be given in addition to homemade food as reported in the study. There is a misconception regarding snacks among nursing students. Biscuits, fruit juices, and fruit drinks should be avoided [24].

Regarding the grades of nursing students, a statistically significant difference was found between students' grades and knowledge, $p=0.0007$, where 4th-grade nursing students showed greater breastfeeding knowledge levels than 1st-grade nursing students. Nursing students accept more knowledge through their studies in nursing faculty.

In our study participants were aware of good attachment (77.5%) and proper positioning (89.2%) for breastfeeding. While in a study conducted in a tertiary health center in Karnataka, students had poor knowledge regarding good attachment (40%) and proper positioning (48%) for breastfeeding [25]. In the neonatal period, the establishment of early contact is crucial. To achieve maximum benefits of

breastfeeding feeding the mother and baby should be appropriately positioned. A poorly attached baby is likely to suckle ineffectively.

Most of the participants (78%) perceived that formula feeding is not healthier and does not supply nourishment more than breastfeeding for babies below 6 months of age. Formula feeding is as good as breast milk in a study conducted by Linares et al. [26]. Majority of the nursing students felt breastfeeding is more convenient and healthier than formula feeding. Promoting breastfeeding can have additional benefits also. As compared to formula feeding it is economical as there is no need to purchase bottles and feeding formulas.

58.3% of students knew that the size of the breast doesn't determine breast milk production. Lack of knowledge and misconceptions were identified among nursing students. 100% of the participants perceived that breastfeeding helps a mother to make a strong bond with her baby. A study was conducted in Jordan [23] where 83.3% of participants felt the same.

In our study, 90.8% of participants will prefer breastfeeding in the future. In a similar study by Khresheh et al. 82% of the students wanted to breastfeed their future child. The personal interest component also makes a positive impact in learning breastfeeding practices as these generations will be mothers in the future.

In the present study more than three-fourths (80.8%) participants perceived breastfeeding in public should not be discouraged. In contrast in a similar study conducted by Saudi Arabia [27], the majority (72%) of participants perceived breastfeeding in public as embarrassing, unacceptable, and makes breastfeeding less attractive. Awareness is needed for the general public to support breastfeeding mothers so that they feel comfortable to breastfeed in public.

5. Conclusion

Our study identified that nursing students understand that breastfeeding is the preferred method to feed newborns and infants and they acknowledge that it brings many health benefits for the mother and baby. The core purpose of the Baby-Friendly Hospital Initiative (BFHI) is to protect, promote, and support breastfeeding. It also ensures that mothers and newborns receive timely and appropriate care before and during their stay in a facility providing maternity and newborn services, to enable the establishment of optimal feeding of newborns, which promotes their health and development. Nursing students need to receive adequate breastfeeding training so that they can contribute to BFHI's success by facilitating successful breastfeeding initiation and exclusivity. The valuable results obtained in this study can be considered for future research work among nursing students for acquiring breastfeeding knowledge and to promote the development of educational interventions for future policies and programs.

Limitations of the study:

This study has some limitations. The studied population does not fairly capture all undergraduate students around Delhi, as only one nursing college has drawn the study participants. Besides responses can be influenced by social desirability as self-reported questionnaires were used.

Ethical Statement:

The Institutional Ethics Committee gave its clearance before data collection (North MDC Medical College and Hindu Rao Hospital of the Dean, date:15.02.2024 and approval number: 2024/256).

Acknowledgments:

The authors are grateful to all the nursing students who have contributed to this study.

Conflicts of interest:

There are no conflicts of interest.

Author's Contribution:

The author's contribution to the study is equal.

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