



"ASSESSING KNOWLEDGE AND ATTITUDES REGARDING BREASTFEEDING AMONG UNDERGRADUATE MEDICAL STUDENTS IN CENTRAL INDIA: A CROSS-SECTIONAL STUDY".

Dr Pratibha Kale¹, Dr. Apurva kale², Dr. Pankaj Barabde³, Dr. Aditi Katkar^{4*}

¹Professor at Dept. of Paediatrics, Dr. Panjabrao Deshmukh Memorial Medical College, Amravati.
Email id - drpvkale@gmail.com

²Assistant professor, at Dept. of Paediatrics, Dr. Panjabrao Deshmukh Memorial Medical College, Amravati. Email id- drapurvakale84@gmail.com

³ Associate professor, at Dept. of Paediatrics, Dr. Panjabrao Deshmukh Memorial Medical College, Amravati. Email id – drpvbarabde@gmail.com

^{4*} Assistant professor, at Dept. of Obstetrics and Gynaecology, Dr. Panjabrao Deshmukh Memorial Medical College, Amravati. Email id - aditikatkarb@gmail.com

***Corresponding Author:-** Dr. Aditi Katkar

* Assistant professor, at Dept. of Obstetrics and Gynaecology, Dr. Panjabrao Deshmukh Memorial Medical College, Amravati. Email id - aditikatkarb@gmail.com

Abstract:

Background: Breast milk serves as the ideal source of nutrition for infants and is essential to ensuring children's health and survival. Therefore, the main objective of this study is to evaluating breastfeeding knowledge and attitudes among medical college undergraduates in central India.

Methodology: This was institutional based cross sectional study conducted at Dr. P. D. M. Medical College & research centre in central India. We employed a validated structured questionnaire to evaluate the breastfeeding knowledge and attitudes among medical college students. A comprehensive enumeration was conducted among all students from the college. In our analysis, a p-value of <0.05 was considered statistically significant in order to assess the impact of various factors on breastfeeding knowledge.

Results: In the first year, breastfeeding durations varied, with significant year-to-year differences noted ($p = 0.004$). Preferences for weaning foods also varied across the three years, with a highly significant association found between food type and year ($p < 0.001$). The timing of water introduction to infants showed a significant relationship with the year ($p = 0.006$). Students' knowledge about twin's and supplemental feeding demonstrated a strong year-related correlation ($p < 0.0001$), but similar trends were observed in subsequent years without specific statistics. Likewise, knowledge about breast size and secretion displayed a significant year-related relationship ($p = 0.006$), while prevention of pollution using breastfeeding showed varying responses across the years without significant associations in chi-square tests.

Conclusion: This study revealed significant year-to-year variations in breastfeeding practices, weaning food choices, and the timing of water introduction to infants. Students' knowledge levels regarding certain aspects of infant care also varied by year. However, no significant associations were found concerning pollution prevention through breastfeeding. These findings highlight the

need for ongoing education and interventions to promote maternal and child health. Further research can help explore the underlying factors driving these trends.

Keywords: Breast milk, breastfeeding, knowledge, medical students, children health.

Introduction:

Breastfeeding is an ideal source of nourishment for newborns, playing a crucial role in promoting child health and ensuring their survival. ^[1] Breast milk contributes to a healthier, more intellectual and equitable world. Embracing universal breastfeeding could prevent the tragic loss of 823,000 young lives and 20,000 mothers annually, while also generating substantial economic savings amounting to US\$300 billion. Breastfeeding not only precaution infants from infections but also offers potential defense against issues like obesity and diabetes, enhances cognitive development, and provides protective benefits to mothers by reducing the risk of cancer. ^[2] Indeed, international organizations such as the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) counsel for the initiation of breastfeeding within the first hour of birth. Furthermore, these organizations recommend the exclusive continuation of breastfeeding for the initial six months of an infant's life. ^[3,4] The merits of exclusive breastfeeding are well-documented, offering numerous health advantages, not only for infants but also for mothers. ^[5]

In developing countries, infants who are not breastfed face a significantly higher risk of mortality during their first months of life, with a six to tenfold increase in the likelihood of death compared to their breastfed counterparts. ^[6-8]

Breastfeeding offers significant health benefits to infants and is an optimal, readily accessible source of nutrition for all newborns. Colostrum, the initial substance produced by a mother's breast after childbirth, is a thick, yellowish fluid rich in essential antibodies such as IgA, IgM, and IgG. Additionally, it contains vital components like lactoferrin, lysozymes, complement, and proline-rich polypeptides. Colostrum is notably high in carbohydrates and proteins, while its fat content remains relatively low. This substance not only shields the baby from infections but also plays a crucial role in regulating the gastrointestinal functions of the infant's body. ^[9]

Additionally, breastfeeding offers various maternal health advantages, including assistance in child spacing, and the establishment of a strong bond between the mother and her baby. Moreover, breastfeeding yields enduring benefits for infants, primarily impacting cognitive development and lowering the incidence of immune-related diseases. ^[9, 10] Several factors influence mothers to commence and sustain breastfeeding, with health professionals playing a vital role in elucidating the benefits of breastfeeding for both the mother and her baby. ^[11]

Despite the multitude of benefits associated with breastfeeding, there exists a limitation in its perception and adoption. Healthcare professionals have a pivotal role to play in advocating and encouraging breastfeeding practices. ^[12,13] Hence, it becomes imperative that medical students acquire comprehensive knowledge about breastfeeding during their educational journey. ^[14] While medical students generally exhibit a positive attitude towards breastfeeding, their understanding is often deficient, and perceptions can vary widely. ^[15] Therefore, this current study aims to assess the knowledge and attitudes concerning breastfeeding among undergraduate students in a medical college located in central India.

Material and methodology:

This research constituted a cross-sectional observational study was conducted at Dr. P. D. M. Medical College & research centre in central India. The study's patients were comprised 300

undergraduate students, with 76 from the first year, 104 from the second year, and 120 from the third year.

Data Collection

During data collection, the researchers gathered essential information, including the students' names, the name of the college, and their year of study. Additionally, a structured questionnaire was administered, focusing on topics related to both breastfeeding (B.F) and complementary feeding (C.F).

Questionnaire Emphasis:

The questionnaire aimed to comprehensively cover critical aspects of breastfeeding knowledge and attitudes. These included inquiries about prelacteal feeds, colostrum, the recommended timing for initiating breastfeeding, the total duration of breastfeeding, the use of bottles for top feeding of lactating mothers, awareness of the Infant Milk Substitutes (IMS) Act, participation in breastfeeding awareness programs, and knowledge about HIV transmission in relation to breastfeeding.

Data analysis:

Before completing the proforma, all questions were explained to the participating students. Following data collection, Microsoft Excel was employed as the primary tool for data analysis. The analysis involved calculating percentages and applying suitable statistical tests to assess the significance of the findings. This comprehensive approach allowed for a thorough evaluation of breastfeeding knowledge and attitudes among undergraduate medical students in Central India.

Result and observations:

Table-1: Total duration of Breast-feeding

Total duration of Breast-feeding :							Chi square	P value
Year	< 12 Months	%	12 - 24 Months	%	> 24 Months	%		
First	40	21%	111	58%	40	21%	15.09	0.004
Second	36	18%	128	63%	40	20%		
Third	20	9%	167	73%	43	19%		

In the first year, 21% breast-fed for less than 12 months, 58% for 12 to 24 months, and 21% for over 24 months. A chi-square test yielded a significant result ($\chi^2 = 15.09$, $p = 0.004$), indicating a likely non-random association between the year and breastfeeding duration.

In the second year, 18% breast-fed for less than 12 months, 63% for 12 to 24 months, and 20% for over 24 months, but no statistical test data were provided, preventing us from drawing conclusions about differences compared to the first year. In the third year, 9% breast-fed for less than 12 months, 73% for 12 to 24 months, and 19% for over 24 months.

Table-2: Type of Food for Weaning

Type of Food for Weaning	Home Available	%	Baby Food	%	Both	%	Chi square	P value
First	22	12%	58	30%	111	58%		
Second	26	13%	56	27%	122	60%		
Third	116	50%	26	11%	88	38%		

The table illustrates the preferences for weaning foods across three years. In the first year, 12% opted for home-available food, 30% chose baby food and 58% used a combination of both.

In the second year, 13% favored home-available food, 27% selected baby food, and 60% used both options. In the third year, 50% relied on home-available food, 11% preferred baby food, and 38% utilized both types. A highly significant association between food type and year was found via chi-square analysis ($p < 0.001$).

Table-3: When Water should be offered to Baby?

When Water Should be Offered to Baby?	In 1 st Month	%	1 To 2 Months	%	After 6 Months	%	Chi square	P value
First	77	40.31%	86	45.02%	28	16.65%	17.15	0.006
Second	64	31.37%	87	42.64%	53	25.98%		
Third	88	38.42%	74	32.31%	67	29.26%		

In the first year, 40.31% introduced water in the 1st month, 45.02% between 1 to 2 months, and 16.65% after 6 months.

In the third year, 38.42% offered water in the 1st month, 32.31% between 1 to 2 months, and 29.26% after 6 months. A chi-square test yielded a significant result ($p = 0.006$), suggesting a non-random link between the year and when water was introduced to infants.

Table-4: Knowledge of Students Regarding Breast Feeding

Twin's & Supplemental Feeding	YES	%	NO	%	Chi square	P value
First	105	55%	85	45%	24.27	<0.0001
Second	120	59%	85	41%		
Third	84	37%	145	63%		
Breast Size & Secretion	YES	%	NO	%	14.08	0.006
First	46	24.08%	145	75.91%		
Second	53	25.98%	152	74.50%		
Third	28	12.22%	201	87.77%		
Preventing Pollution using Breast-feeding	YES	%	NO	%	0.61	0.73
First	137	72%	54	28%		
Second	139	68%	65	32%		
Third	159	69%	70	31%		

In the context of "Twin's & Supplemental Feeding," during the first year, 55% of students were knowledgeable ("YES"), while 45% lacked awareness ("NO"). A robust chi-square analysis revealed a highly significant correlation ($p < 0.0001$) between the year and students' understanding of twin's and supplemental feeding. Similar trends were observed in the second and third years, although specific statistical test results were not provided.

Regarding "Breast Size & Secretion," in the first year, 24.08% of students responded positively ("YES"), while 75.91% lacked this knowledge ("NO"). A chi-square analysis demonstrated a significant relationship ($p = 0.006$) between the year and students' comprehension of breast size and secretion. Comparable patterns were evident in the second and third years, although precise statistical outcomes were not reported.

Concerning "Preventing Pollution using Breast-feeding," the data showed varying percentages of "YES" and "NO" responses across the years. However, the conducted chi-square tests for each year did not reveal significant associations.

Discussion:

Breast milk serves as the primary and optimal nourishment for infants. Regrettably, it is not consistently provided to babies as it should be. The mother's choice is not the sole factor contributing to the lack of breastfeeding; the insufficient knowledge of healthcare professionals plays a significant role in this issue. Healthcare professionals are often the primary point of contact for mothers, and therefore, enhancing their understanding of breastfeeding initiation, duration, its advantages, and managing special circumstances is essential. ^[16,17] Thus, in the present study purpose to assess the knowledge and attitudes concerning breastfeeding among undergraduate students in a medical college located in central India.

In the first year of our study, it was found that 21% of participant's breastfed for less than 12 months, 58% breastfed for 12 to 24 months and 21% breastfed for over 24 months. Unfortunately, no statistical test data were provided in the second year, which prevents us from drawing conclusions about any differences compared to the first year. Furthermore, in the third year of our study, 9% breastfed for less than 12 months, 73% breastfed for 12 to 24 months, and 19% breastfed

for over 24 months. It is worth noting that our study's outcomes closely align with those of a study conducted by *Brahmbhatt KR et al.*,^[18] which reported that 66% of students demonstrated adequate knowledge regarding breastfeeding.

A study conducted in Chitradurga, Karnataka in 2011-12 revealed that the knowledge of students regarding breastfeeding was generally insufficient. While the students were knowledgeable about the benefits of breastfeeding for babies, a significant majority of them were unable to provide accurate responses to questions concerning the advantages of breastfeeding for mothers and breastfeeding in unique situations.^[19]

In the present study, in the first year, 40.31% introduced water in the 1st month, 45.02% between 1 to 2 months and 16.65% after 6 months. In the third year, 38.42% offered water in the 1st month, 32.31% between 1 to 2 months and 29.26% after 6 months. A chi-square test yielded a significant result ($p = 0.006$), suggesting a non-random link between the year and when water was introduced to infants.

In the perspective of "Twin's & Supplemental Feeding," during the first year, 55% of students demonstrated knowledge ("YES"), while 45% lacked awareness ("NO"). Regarding "Breast Size & Secretion," in the first year, 24.08% of students responded affirmatively ("YES"), while 75.91% lacked this knowledge ("NO"). Concerning "Preventing Pollution using Breastfeeding," the data indicated varying percentages of "YES" and "NO" responses across the years. However, the chi-square tests conducted for each year did not reveal any significant associations.

A study conducted by Moukarzel et al.^[20] revealed that senior medical students in a public medical school exhibited lower-than-expected levels of knowledge, and there was no discernible difference between third and fourth-year students. Furthermore, Moukarzel (2018) discovered that students considering a specialization in obstetrics or pediatrics did not possess higher knowledge scores when compared to other senior medical students.

Conclusion:

This study revealed significant year-to-year variations in breastfeeding practices, weaning food choices, and the timing of water introduction to infants. Students' knowledge levels regarding certain aspects of infant care also varied by year. However, no significant associations were found concerning pollution prevention through breastfeeding. These findings highlight the need for ongoing education and interventions to promote maternal and child health. Further research can help explore the underlying factors driving these trends.

References:

1. American academy of paediatrics. Breastfeeding and the Use of Human Milk. *Pediatr.* 2012;129(3).
2. Available at: <https://www.thelancet.com/series/breastfeeding> 475-491.
3. Dykes F. Breastfeeding in hospital: mothers, midwives and the production line. UK: Routledge; 2006
4. World Health Organization. Infant and young child feeding. Geneva: World Health Organization; 2020. [Cited 3 Mar 2020] Available from: <https://www.who.int/news-room/fact-sheets/detail/infant-and-young-child-feeding> .
5. Victora CG, Bahl R, Barros AJD, et al. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. *The Lancet.* 2016;387:475–90.
6. McFadden A, Gavine A, Renfrew MJ, Wade A, Buchanan P, Taylor JL, et al. Support for healthy breastfeeding mothers with healthy term babies. *Cochrane Database of Systematic Reviews.* 2017(2).
7. Adrawa AP, Opi D, Candia E, Vukoni E, Kimera I, Sule I, et al. Assessment of the knowledge and practices of exclusive breastfeeding amongst the breastfeeding mothers in adjumani district, west Nile. *East Afr Med J.* 2016;93(11):576-81.

8. Schmied V, Beake S, Sheehan A, McCourt C, Dykes F. Women's perceptions and experiences of breastfeeding support: a metanalysis. *Birth*. 2011 ;38(1):49-60]
9. World Health Organization. Nutrition. Comprehensive implementation plan on maternal, infant and young child nutrition. Available at:https://www.who.int/nutrition/publications/CIP_document/en/.
10. Chowdhury R, Sinha B, Sankar MJ, Taneja S, Bhandari N, Rollins N, et al. Breastfeeding and maternal health outcomes: a systematic review and meta-analysis. *Acta Paediatr*. 2015 Dec;104:96-113.
11. Yang SF, Salamonson Y, Burns E, Schmied V. Breastfeeding knowledge and attitudes of health professional students: a systematic review. *Internat Breastfeeding J*. 2018;13(8).
12. Kakrani VA, Rathod HK, Mammulwar MS, Bhawalkar JS. Awareness about "Ten Steps for Successful Breastfeeding" among medical and nursing students. *Internat J Preventive Med*. 2015;6.
13. Park K. *Park's Textbook of Preventive and Social Medicine*. 22nd ed. Banarsidas Bhanot Publisher; 2013:499.
14. Lewin LO, O'Connor ME. "Breastfeeding Basics" Web-Based Education that Meets Current Knowledge Competencies. *J Human Lactation*. 2012 ;28(3):407-13.
15. Seema N, Saboohi E, Kazi U, Hadi A, Khan H, Channa Y, Tariq A. Perception of medical students regarding breast feeding at Al Tibri Medical College and Hospital: a comparative study. *Int J Res Med Sci* 2019;7:4171-6.
16. Szucs KA, Miracle DJ, Rosenman MB. Breastfeeding knowledge, attitudes, and practices among providers in a medical home. *Breastfeeding Med*. 2009 1;4(1):31-42.
17. Utoo BT, Ochejele S, Obulu MA, Utoo PM. Breastfeeding knowledge and attitudes amongst health workers in a health care facility in SouthSouth Nigeria: The need for middle level health manpower development. *Clini Mother Child Health*. 2012;9(1):5
18. Brahmhatt KR et al. Knowledge of breastfeeding among female college students: institution based cross-sectional study. *Int J Community Med Public Health*. 2016 Jun;3(6):1579-1583
19. Payghan BS, Kadam SS. Knowledge and attitude of college students about breastfeeding. *Int J Health Sci Res*. 2012;2(8):47-56.
20. Moukarzel, S., Mamas, C., Warstadt, M., Bode, L., Farhat, A., & Abi Abboud, A. A case study on breastfeeding education in Lebanon's public medical school: exploring the potential role of social networks in medical education. *Med Educ Online*. 2018; 23(1).