

Medical Students' Awareness of General and Special Breastfeeding Practices: A Single-Center Study in Iraq

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Abstract

Background: The substantial health, medical, and neurodevelopmental benefits of breastfeeding for both mother and child are well-documented in contemporary literature. Human milk remains the quintessential nutritional source for optimal infant growth and development.

Objectives: This study aims to evaluate the baseline knowledge of medical students concerning general breastfeeding practices as well as their understanding of protocols during special clinical scenarios.

Methods: A descriptive cross-sectional analysis was executed among first- through final-year medical students at Al-Kindy College of Medicine during the 2023/2024 academic year, utilizing a pre-tested, self-administered questionnaire.

Results: The cohort comprised 200 participants, segregated into preclinical (n=84) and clinical (n=116) educational stages. Findings indicate that clinical-stage students exhibited a significantly higher comprehension of the initiation, optimal duration, and inherent advantages of breastfeeding compared to their preclinical peers.

Conclusion: A student's educational tier serves as a critical determinant of their breastfeeding knowledge, with clinical-stage students demonstrating demonstrably superior awareness.

Keywords: Breastfeeding, Medical Students, Practices of Breastfeeding.

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INTRODUCTION

Human milk and breast-feeding are the ideal and normative standards for infant feeding and nutrition. Human milk is recognized as the optimal feeding for all infants because of its proven health benefits to infants and their mothers. Breast milk is safe, clean, and contains antibodies which help to protect against many illnesses. Human milk feeding decreases the incidence and severity of diarrhea, respiratory illness, otitis media, necrotizing enterocolitis and sudden infant death syndrome¹⁻⁴.

Extensive research has highlighted the positive health effects of breast milk that extend into childhood and adulthood. Recent studies have further suggested that breast milk may play a role in mitigating the infant programming of metabolic diseases, particularly protecting against obesity and type 2 diabetes^{5,6}.

Public health organizations, including the World Health Organization recommends six months of exclusive breastfeeding for optimal growth, cognitive development and health. Exclusive breastfeeding is defined as giving no other food or drink (not even water) except breast milk. It does, however, allow infants to receive oral rehydration solution, drops and syrup (vitamins, minerals, and medicines)^{2,7-9}.

Provision of mother's breast milk to infants within one hour of birth is referred to as early initiation of breastfeeding and ensure that the infant receives the colostrum, or first milk, which is rich in protective factors. Colostrum, a nutrient-rich fluid produced by the mother immediately after giving birth, is a complex biological fluid which contains significant quantities of complement components, Secretory IgA, and lactoferrin¹⁰⁻¹³.

Breastfeeding contributes to the health and well-being of mothers; it helps to space children, reduces the risk of ovarian cancer and breast cancer, increases family and national resources, is a secure way of feeding and is safe for the environment. The decision of breastfeeding is often influenced by many factors¹⁴⁻¹⁷.

Under rare circumstances there are physical and medical factors that impact a mother's breastfeeding success and duration. Some examples whereby breastfeeding is not advisable for the mother and infant include conditions where the mother is infected with human immunodeficiency virus, or has untreated and active tuberculosis until the completion of approximately two weeks of appropriate maternal therapy¹⁸⁻²¹

All infants born to HBV- infected mothers should receive hepatitis B immune globulin (HBIG) and the first dose of hepatitis B vaccine within twelve hours of birth. However, there is no need to delay breastfeeding until the infant is fully immunized. The risk of HBV mother to child transmission through breastfeeding is negligible if an infant born to an HBV-positive mother receives the HBIG/ HBV vaccine at birth²²⁻²⁴.

Despite the demonstrated benefit of breast milk, the prevalence of breastfeeding, in many developing countries is lower than international recommendation of exclusive breastfeeding. As breastfeeding is considered a life-saving practice, especially in countries suffering from poor economic status and bad sanitary conditions, improving knowledge of medical students about breastfeeding practices is a priority and it is possible to take the advantage of artificial intelligence properties.²⁵⁻²⁷

This study was conducted to highlight the knowledge of medical students about breastfeeding in general and specialized clinical scenarios, as well as the variation of knowledge according to educational stage of students.

METHODS

A cross-sectional study of medical students from first year to final year at Al-Kindy College of Medicine was conducted using a pretested self-administered questionnaire, the data collection time was (from the first of December 2023 to the first of May 2024). Students were divided into preclinical (first, second and third stages) and clinical (fourth fifth and sixth stages) for analysis.

Stratified sampling technique with proportional allocation was used and students were divided into strata according to their level (clinical and preclinical), 84 preclinical (42%) and 116 clinical students (58%). With a total sample size of 200 medical students.

The questionnaire included 20 questions: the first five items assessing personal data (age, gender, residence, educational level, and marital status). Eight items assessing knowledge of medical students about breastfeeding practices (initiation, duration, exclusive breastfeeding). Five items assessing the knowledge about breastfeeding during special situations (during maternal active untreated TB, maternal Hepatitis B and infant diarrhea). One item concerning the source of student's knowledge about breastfeeding either from educational curriculum, health care providers, mass media or from family members.

All students were asked if they need more knowledge about breastfeeding. The participation of students was voluntary. Consent was taken from each student that the data will only be used for research purposes.

The data entry and analysis were done in SPSS version 26.0, chi-square test and test of proportion was used to compare knowledge between preclinical and clinical students. P-value <0.05 were considered significant.

RESULTS

A total of 200 students participated in the study with 84 (42%) from the preclinical group and 116 (58%) from the clinical group. The mean age of the respondents was 21.16 ±1.8 years. The majority (94%) was never married, and 94.5% are urban as shown in table 1.

Table 1: Demographic criteria of the study group:

1. variable	2. Answer	3. frequency	4. Percent %
5. Residence	6. rural	7. 11	8. 5.5
	9. urban	10. 189	11. 94.5
12. Educational level	13. preclinical	14. 84	15. 42
	16. clinical	17. 116	18. 58
19. Marital status	20. single	21. 188	22. 94
	23. engaged	24. 11	25. 5.5
	26. married	27. 1	28. 0.5
29. Stage	30. 1	31. 21	32. 10.5
	33. 2	34. 21	35. 10.5
	36. 3	37. 42	38. 21
	39. 4	40. 45	41. 22.5
	42. 5	43. 40	44. 20
48. Gender	45. 6	46. 31	47. 15.5
	49. Male	50. 76	51. 38
	52. Female	53. 124	54. 62

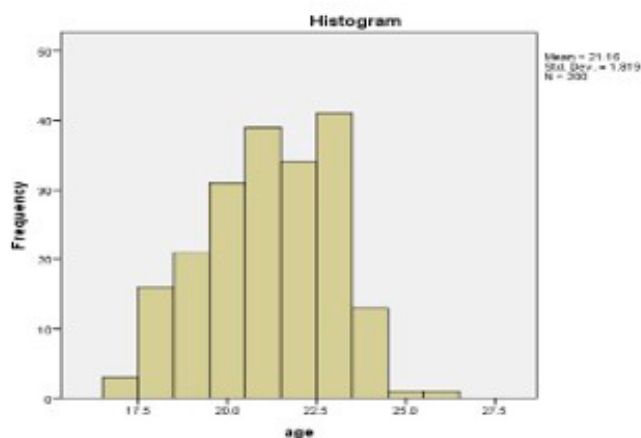


Figure 1. Age of the study group

Table 2 shows that overall, 70% of students knew the correct definition of exclusive breastfeeding and 74% said that exclusive breastfeeding should be continued for six months, while 81.5% of them knew that breastfeeding should be initiated immediately after birth and 81.5% said that breastfeeding should be continued for 2 years.

Table 2. Overall responses to questions related to initiation, duration and supplementation of breastfeeding

Questions:	Answers:	Frequency	Percent %
Q1: Exclusive breastfeeding means:	Milk, without other liquids or solid (not even water)	140	70%
	The infant receives breast milk with liquids	42	21%
	Don't know	18	9%
Q2: Duration of exclusive breastfeeding:	6 months	148	74%
	6-8 months	30	15%
	8-12 months	22	11%
Q3: When after normal vaginal delivery should mothers start breastfeeding	Within one hour of birth	163	81.5%
	6 hours after birth	17	8.5%
	1 day after birth	17	8.5%
Q4: For how long breast feeding should be continued:	Don't know	3	1.5%
	1 years	31	15.5%
	2 years	163	81.5%
	3 years	1	.5%
Q5: Colostrum is considered the best food that increase the infant immunity	Don't know	5	2.5%
	No	6	3%
	Yes	192	96%
Q6: Breastfed babies should be weaned when the first teeth appear	Don't know	2	1%
	Yes	20	10%
	No	114	57%
Q7: Breastfed newborns should be given water or formula until the mother's mature milk comes in	Don't know	66	33%
	Yes	72	36%
	No	80	40%
Q8: Does breastfeeding contribute to the mother's health?	Don't know	48	24%
	Yes	176	88%
	No	20	10%
	Don't know	4	2%

About 58% of students considered that breastfeeding shouldn't be continued with maternal untreated active TB compared to 11% with maternal hepatitis, while 57.5% were aware that breastfeeding should be continued even if the infant develops diarrhea. Regarding the relation between mother's diet and successful breastfeeding only 3.5% students felt that there is no relation as shown in table 3.

Table 3. Overall responses to questions related to breast-feeding during special situation

Questions:	Answers:	Frequency	Percent %
Q1: Should breastfeeding be continued with maternal untreated active TB:	Yes	30	15%
	No ✓	116	58%
	Don't know	54	27%
Q2: Should breastfeeding be continued with maternal hepatitis B if infant receive HBIG/HBV vaccine at birth:	Yes ✓	146	73%
	No	22	11%
	Don't know	32	16%
Q3: When a breastfed infant develops diarrhea:	Stop breast feeding immediately	32	16%
	Continue breastfeeding ✓	115	57.5%
	Don't know	53	26.5%
Q4: Relation between mother's diet and successful breastfeeding:	There is no relation	7	3.5%
	There's strong relation ✓	178	89%
	Don't know	15	7.5%
Q5: Breast feeding reduces chances of subsequent pregnancy	Yes ✓	128	64%
	No	47	23.5%
	Don't know	25	12.5%

Table 4 shows comparison between preclinical and clinical students' knowledge about initiation, duration

and supplementation of breastfeeding. Over (81%) from the clinical group and nearly 55% from preclinical group knew the correct definition of exclusive breast-feeding. On asking about the duration of exclusive breastfeeding, most of the students from the clinical group (86.2%) said that it should be given exclusively for 6 months. On the other hand, about (23.8%) from the preclinical group had a misconception that it should be continued for 8 to 12 months exclusively ($p<0.001$). About (93.1%) from the clinical group and (65.5%) from preclinical group were of the opinion that breast-feeding should be started immediately after normal vaginal delivery ($p=0.00$). Approximately (81%) from preclinical group and 81.9% from clinical group knew that breastfeeding should be continued with complementary foods up to two years of age ($p=0.280$).

The majority of participants 77 (91.6%) from the preclinical group and (99%) from clinical group had the idea that colostrum is considered the best food that increases the infant's immunity. About (29.7%) and (47.4%) from preclinical and clinical students; respectively said that breastfed newborns should not be given water or formula until the mother's milk comes in ($p=0.0011$). Only 58.6% from clinical group and 54.8% from preclinical group were aware that breastfed babies shouldn't be weaned when the first teeth appear ($p=0.859$).

Table 4. Comparison of responses between preclinical and clinical student knowledge about initiation, duration and supplementation of BF

55. Questions:	Answers:	Preclinical Total =84		Clinical Total =116		P-value
		Frequency:	Percent%:	Frequency	Percent%:	
Q1: Exclusive breastfeeding means:	Milk, without other liquids or solid (not even water) ✓	46	(54.8%)	94	(81%)	0.00
	The infant receives breast milk with liquids	24	(28.6%)	20	(17.3%)	
	Don't know	14	(16.6%)	2	(1.7) %	
Q2: Duration of exclusive breastfeeding:	6 months ✓	48	(57.2%)	100	(86.2%)	0.00
	6-8 months	20	(23.8%)	10	(8.6%)	
	8-12 months	16	(19%)	6	(5.2%)	
Q3: When after normal vaginal delivery should mothers start breastfeeding	Within one-hour of birth ✓	55	65.5%	108	93.1%	0.00
	6 hours after birth	11	13.1%	6	5.2%	
	1 day after birth	15	17.9%	2	1.7%	
	Don't know	3	3.6%	0	0%	

Q4: For how long breast feeding should be continued	1 years	12	14.3%	19	16.4%	0.280
	2 years ✓	68	81.0%	95	81.9%	
	3 years	0	0%	1	0.9%	
	Don't know	4	4.7%	1	0.9%	
Q5: Colostrum is considered the best food that increase the infant immunity:	No	6	7.2%	0		0.008
	Yes	77	91.6%	115	99%	
	Don't know	1	1.2%	1	1%	
Q6: Breastfed babies should be weaned when the first teeth appear	Yes	9	10.7%	11	9.5%	0.859
	No ✓	46	54.8%	68	58.6%	
	Don't know	29	34.5%	37	31.9%	
Q7: Breastfed newborns should be given water or formula until the mother's mature milk comes in	No	25	29.7%	55	47.4%	0.011
	Yes	31	37%	41	35.3%	
	Don't know	28	33.3%	20	17.3%	

Table 5 reveals comparison of response between preclinical and clinical students about breastfeeding practices in certain special situations. Regarding continuation of breastfeeding in maternal infectious diseases, (59.5%) preclinical and (56.9%) clinical students said that breastfeeding shouldn't continue with maternal untreated active TB ($p=0.812$), and about (71.1%) preclinical and (74.1 %) clinical students agreed to continue breastfeeding with maternal hepatitis B, if the infant received HBIG/HBV at birth ($p=0.178$). About 72.4% from clinical group and (36.9%) from preclinical were aware that breastfeeding should be continued in a baby even if the baby develops diarrhea ($p=0.00$). Regarding the relation between mother's diet and successful breastfeeding large numbers of students in both groups (preclinical 89.3% and clinical 87.9%) knew that there is strong relation($p=0.586$). Over three quarters (76.7%) from clinical group and (46.4%) from preclinical group stated that breastfeeding reduces the chances of a subsequent pregnancy ($p<0.001$).

Table 5. Comparison of responses between preclinical and clinical students about BF during special situations

Questions Answers Preclinical (84)				Clinical (116)		P-value
Frequency Percent				Frequency Percent		
Q1: Should breastfeeding be continued with maternal untreated active TB:	Yes	11	13.1%	19	16.4%	0.812
	No	50	59.5%	66	56.9%	
	Don't know	23	27.4%	31	26.7%	
Q2: Should breastfeeding be continued with maternal hepatitis B if infant receive HBIG/ HBV vaccine at birth:	Yes	60	71.4%	86	74.1%	0.178
	NO	13	15.5%	9	7.8%	
	Don't know	11	13.1%	21	18.1%	
Q3: When a breastfed infant develops diarrhea:	Stop breast feeding	16	19%	16	13.8%	0.00
	Continue breastfeeding	31	36.9%	84	72.4%	
	Don't know	37	44%	16	13.8%	
Q4: Relation between mothers' diet and successful breastfeeding:	No relation	2	2.4%	5	4.3%	0.586
	Strong relation	75	89.3%	102	87.9%	
	Don't know	7	8.3%	9	7.8%	
Q5: Breastfeeding reduces chances of subsequent pregnancy:	Yes	39	46.4%	89	76.7%	0.00
	No	22	26.2%	25	21.6%	
	Don't know	23	27.4%	2	1.7%	

Table 6: shows the source of student's knowledge about breastfeeding. Educational curriculum was the main source of knowledge reported by clinical stage

students (66.4%), compared to only (14.3%) of preclinical stage students ($p \leq 0.001$), on the other hand, family members were the main source selected by preclinical students (52.4%). The need for more information was reported by 13% of all students with statistical difference ($p \leq 0.001$). Media and health care providers have minor roles in getting knowledge about breastfeeding, as shown in figure 2 and figure 3.

Table 6. Source of students' knowledge about breastfeeding

	Total=200 Frequency (percentage)	Preclinical=84 Frequency (percentage)	Clinical=116 Frequency (percentage)
Health care providers	14 (7%)	1 (1.2%)	13 (11.2%)
Educational curriculum	89 (44.5%)	12 (14.3%)	77 (66.4%)
Mass media	16 (8%)	9 (10.7%)	7 (6%)
Family members	55 (27.5%)	44 (52.4%)	11 (9.5%)
Need for more knowledge about breastfeeding	26 (13%)	18 (21.4%)	8 (6.9%)

DISCUSSION

There is a universal consensus regarding the vital importance of breastfeeding for children's adequate growth and development and their physical and mental health.^{28,29}

This study aimed to assess the knowledge about breastfeeding practices among medical students at Al-Kindy College of Medicine. Such research can provide valuable insights into the readiness of future healthcare professionals to support breastfeeding mothers and infants.

It's encouraging that the results indicate about (70%) of participants knew the correct definition of exclusive breastfeeding, and (74%) of the students correctly identified the World Health Organization's recommended six-month period for exclusive breastfeeding. This result was higher than the knowledge expressed in a study conducted among female medical students in Egypt by Abdel-Hady, et al, found that (51%) of students were aware about the duration of exclusive breastfeeding.²⁸

In a study conducted by Jamalvi, et al, among medical students in Pakistan revealed that (60%) of students knew that the most appropriate time to start breastfeeding is immediately after birth (30). This result was similar to the answers given by preclinical students, where, about (65.5%) of our students stated that breastfeeding should start immediately after delivery, while the result of clinical group was (93.1%).

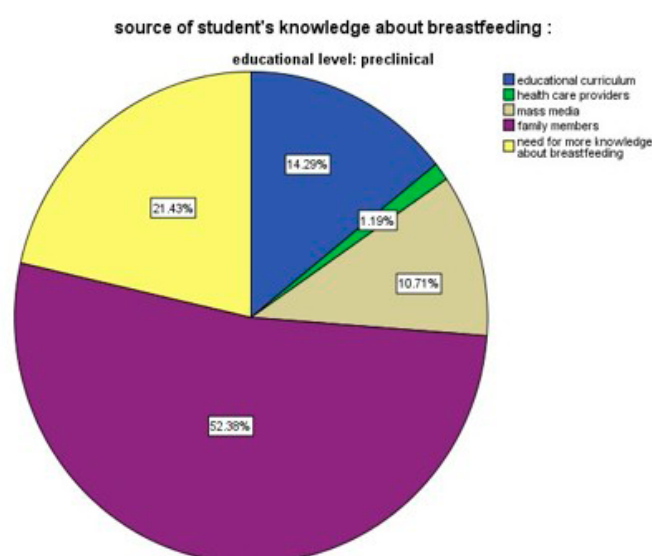


Figure 2. Source of student's knowledge about breastfeeding (preclinical group)

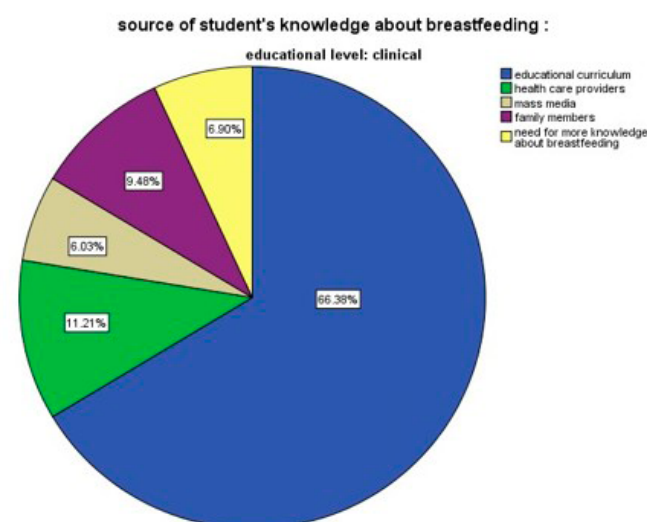


Figure 3. Source of student's knowledge about breastfeeding (clinical group)

Moreover, the knowledge of participants about advantages of colostrum in this study was good, where most of the students (91%) considered that colostrum is best food for infant's immunity, which was similar to what we found in a study by Jamalvi, et al as (67.4%) of students said the colostrum should not be discarded and reported its effects as beneficial.³⁰

Breastfeeding contributes to the health and well-being of mothers; it reduces the risk of ovarian cancer and breast cancer, increases family and national resources, and it increase the duration of lactation amenorrhea.³¹⁻³³

In our study about (88%) of students gave a satisfactory response about the benefit of breastfeeding to the health of mothers, this result was in agreement with a study by Amin T, et al, in Saudi Arabia found that (86%) of students had the idea that breastfeeding protects women from breast cancer. (34) Another study by Anjum Q, et al in Karachi, found that majority of students were aware of advantages of breastfeeding and about half of them stated that breastfeeding reduces the chances of subsequent pregnancy (35), this result in agreement with our study as (64%) of students believed that breastfeeding can reduce the rate of subsequent pregnancy.

Certain special situations related to breastfeeding practices were inquired from the students. Those related to continuation of breastfeeding in babies with diarrhea or maternal hepatitis and TB. Clinical group in this study showed better responses to all these questions as compared to the preclinical group. This might be due to the ward rotations and practical experience in the clinical years.^{18,19,36}

Significant proportion of participants (57.5%) in this study agreed with continue breastfeeding when a breastfed infant develops diarrhea, as this consistent with recommendations from health authorities that breastfeeding should typically continue during episodes of diarrhea, with appropriate monitoring and management. This was similar to the results of a study conducted in Egypt²⁸ and a study among medical students in Karachi³⁵, where about half of students were aware that breastfeeding should be continued in a child having diarrhea.

When asking about continuation of breastfeeding during maternal infectious diseases, about (73%) of students were aware that infected mother with hepatitis B can continue breastfeeding if her infant received the HBIG/HBV vaccine at birth. The risk of HBV mother-to-child transmission through breastfeeding is negligible if infants born to HBV-positive mothers receive the HBIG/HBV vaccine at birth.^{37,38}

Infants whose mothers develop infectious (smear or culture positive) TB shortly before or after delivery will not be protected against it and should be given preventive chemotherapy with isoniazid for 6 months³⁹. And about 58% of students would advise to stop breastfeeding with maternal untreated active TB.

Majority of the students in this study were aware of the role of dietary factors in successful breastfeeding. Nutritional requirements during lactation are greater

than in pregnancy, so women should be taught about the importance of adequate diet in order to sustain lactation without depleting their own nutritional store. Particular attention should be paid to intake of protein, calcium and vitamins⁴⁰.

In this study, the distribution of sources of knowledge among medical students about breastfeeding offered valuable insights into the various channels through which they acquired information. It's interesting to note that family members constitute the primary source for a significant portion of preclinical students, while (66.4%) of clinical students acquired their information from educational curriculum. These findings demonstrated differences in reliance on informal and formal sources, potentially influenced by the student's stage of medical education and clinical exposure.

To improve breastfeeding practices, mothers require proper education, care, and professional support⁴¹. So, it is essential that medical students, as future doctors have a good knowledge and positive attitude towards breastfeeding, and are able to provide women with the basic information they required.

STUDY LIMITATIONS

This study possesses certain limitations that warrant consideration, primarily stemming from its cross-sectional design. Because the research was confined to a single institution—Al-Kindy College of Medicine—the findings may lack broader generalizability. Students at other medical faculties with differing curricula, clinical environments, or demographic profiles might exhibit different knowledge baselines.

CONCLUSION

For medical students, it is necessary to show an encouraging knowledge and attitude concerning breastfeeding. They should be capable of providing breastfeeding mothers with mandatory basic knowledge. Based on the results of this study, it can be concluded that medical students possess a moderate range of knowledge regarding breastfeeding, and educational stage is a significant variable in the level of knowledge, the knowledge of students regarding breastfeeding was more in the clinical group as compared to the preclinical group.

Ethics Statement and Conflict of Interest Disclosures

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Ethics Consideration: The authors declare that all the procedures and experiments of this study respect the ethical standards in the Helsinki Declaration of 1975, as revised in 2008(5), as well as the national laws.

Written informed consent was provided by the patient participant in this study. This study was approved by the Institutional Research Board and Ethics Committee.

Conflict of interest: No known conflict of interest correlated with this publication.

Availability of data and materials: The data used and/or analyzed throughout this study are available from the corresponding authors upon reasonable request.

Competing interests: The authors declared that they have no competing interests.

The use of generative AI and AI-assisted technologies: The authors did not use in this article generative AI and AI-assisted technologies.

References

1. Buchanan AO, Marquez ML. Pediatrics Nutrition and Nutritional Disorders. In: Marcdante KJ, Kliegman RM, editors. Nelson Essential of Pediatrics. 9th ed. Elsevier Saunders. 2023. PP 101-105.
2. World Health Organization (WHO). Breastfeeding. 2015. Available at: <https://www.who.int/news-room/questions-and-answers/item/breastfeeding> Accessed date: July 13, 2026.
3. AL-MOMEN H, JASIM SK, OLEWI AO, Razzak OBAID AA, AL-AMERI LT, ALMOMEN R. Gestational Diabetes and Preeclampsia in Adolescent Pregnancy: Neonatal and Obstetric Outcomes. *Medicina Moderna - Modern Medicine*. 2025; 32(4):419. <https://doi.org/10.31689/rmm.2025.32.4.375>
4. Jasim SK, Al-Momen H, Wahbi MA. Treatment options of adolescent gestational diabetes: effect on outcome. *Pakistan Journal of Medical Sciences*. 2021 Jul;37(4):1139.
5. Savino F, Benettis S, Ligour SA, Sorrenti M. Advances on human milk hormones and protection against obesity. *Cellular and Molecular Biology J*.2013; 59(1): 89-98.
6. Jasim SK, Al-Momen H, Alqurishi AK. Effects of excessive tea consumption on pregnancy weight gain and neonatal birth weight. *Obstetrics & Gynecology Science*. 2021 Jan 1;64(1):34-41.
7. Ssemukasa, E. L., & Kearney, J. Six months of exclusive breastfeeding recommendation: how applicable is the universal exclusive breastfeeding recommendation policy? *African Journal of Food, Agriculture, Nutrition and Development*.2014; 14(4): 9071-9084.
8. Jasim SK, Al-Momen H, Obaid AA. Differences in perinatal

outcomes in teenage mothers with their first and third pregnancies and predictors of adverse neonatal events: A cross-sectional study. *International journal of reproductive biomedicine*. 2021 Dec 13;19(11):1005.

9. Jasim SK, Al-Momen H, Al-Naddawi AM. Prediction of maternal diabetes and adverse neonatal outcome in normotensive pregnancy using serum uric acid. *Int J Res Pharm Sci*. 2019;10(4):3563-9.
10. World Health Organization (WHO). Early initiation of breastfeeding.2017. Available at: <https://www.who.int/tools/elena/commentary/earlybreastfeeding>. Accessed date: July 13, 2026.
11. Uruakpa FO, Ismond MAH, Akobundu EN. Colostrum and its benefit: a review. *Nutrition research*. 2002; 22(6): 755-767.
12. Jasim SK, Al-Momen H, Mahdi ZI, Almomen R. Obstetric and neonatal complications in large for gestational age pregnancy with late gestational diabetes. *Journal of the Turkish German Gynecological Association*. 2023 Mar 15;24(1):12.
13. Jasim SK, Olewi AO, Al-Asadi F, Al-Momen H, Hussein MJ, Majeed BA, Almomen R. Obstetric and Neonatal Outcomes in Overweight Adolescent Pregnant Mothers: S. Kadhim Jasim et al. *The Journal of Obstetrics and Gynecology of India*. 2025 Apr;75(Suppl 1):274-9.
14. World Health Organization (WHO). Breastfeeding Available at: https://www.who.int/health-topics/breastfeeding#tab=tab_1. Accessed date: July 13, 2026.
15. Kozhimannil KB, Jou J, Attanasio LB, et al. Medically complex pregnancies and early breastfeeding behaviors: A retrospective analysis. *PLoS One*. 2014; 9(8): e 104820.
16. AL-MOMEN H, JASIM SK, ALQURISHI AK, OLEWI AO, OBAID AA, HUSSEIN HK, AL-AMERI LT, ALMOMEN R, ALRUBAIE A. Prevalence of Prematurity Outcomes of Overweight Adolescent Pregnancy in One Thousand Premature Neonates in Baghdad. *Medicina Moderna - Modern Medicine*. 2025 ;32(2):175-9. <https://doi.org/10.31689/rmm.2025.32.2.175>
17. Hussein HK, Al-Momen H, Al-Qurishi AK. Association of baseline body mass index and other auxological data in short stature children with idiopathic growth hormone at Al-Rusafa district in Baghdad, Iraq. *Rawal Medical Journal*. 2023 Jul;48(3).
18. Centers of Disease Control and Prevention (CDC). Breastfeeding and Special Circumstance.2023. Available at: <https://www.cdc.gov/breastfeeding/breastfeeding-specialcircumstances/index.html> Accessed date: July 13, 2026.
19. Al-Momen H, Raham TF, Daher AM. Tuberculosis versus COVID-19 mortality: a new evidence. *Open Access Macedonian Journal of Medical Sciences*. 2020 Sep 25;8(T1):179-83.
20. Jasim SK, Daad R, Olewi AO, Al-Momen H, Almomen R. Twin pregnancy: adolescents versus adults. *Journal of the Turkish German Gynecological Association*. 2025 Sep 3;26(3):174.
21. JASIM SK, Hayder AL, IBRAHIM HA, Abdul SA, HUSSEIN AA. Prevalence of Thyroid Dysfunction Among Postmenopausal Women in Baghdad Medical City. *Medicina Moderna - Modern Medicine*. 2025 ;32(4):411-7. <https://doi.org/10.31689/rmm.2025.32.4.411>
22. Centers for Disease Control and Prevention (CDC). Maternal or infant illness or conditions.2022. Available at: <https://www.cdc.gov/breastfeeding/breastfeeding-specialcircumstances/maternal-or-infant-illnesses/index.html> Accessed date: July 13, 2026.
23. Hussein MJ, Majeed BA, Olewi AO, Al-Momen H. Knowledge and Attitude of students about Varicella Infection in AL-Kindy College of Medicine, Baghdad, Iraq. *Rawal Medical Journal*. 2023 Nov 14;48(4):817-.
24. Jasim SK, Al-Momen H, Wahbi MA, Almomen R. Maternal

- and neonatal outcomes in adolescent pregnant women with one prior Cesarean section in Baghdad. *Journal of the Turkish German Gynecological Association*. 2023 Jun 7;24(2):86.
25. Abusaad FE, El-Gilany A. Exclusive breastfeeding and infant morbidity in Sakaka, Saudi Arabia. *Middle East Journal*. 2009; 35(6): 3-8.
26. Hayder AM, JASIM SK, OLEWI AO, OBAID AA, AL-AMERI LT, ALMOMEN R. The Seniority-Skepticism Paradox: AI Adoption and Perceptions Among Medical Students in a Resource-Limited Setting. *Medicina Moderna - Modern Medicine*. 2026 ;33(2):163-9. <https://doi.org/10.31689/rmm.2026.33.2.163>
27. Majeed BA, Jasim SK, Al-Momen H, Hussein MJ. Iraqi women with preeclampsia: maternal and neonatal outcomes. *Open Access Maced J Med Sci*. 2020 Oct 15; 8 (B): 866-870.
28. Abdel-Hady D, Eladawi N, El-Gilany A. Knowledge of female medical students about breastfeeding. *Univers Journal Public Health*.2013; 1(3): 7278.
29. STANESCU AM, TOTAN A, MIRCESCU D, GRAJDEANU IV, SERBAN B, BRATU OG, DIACONU CC. Contraindications to Breastfeeding-Current Issues at the Border Between Myth and Reality. *Medicina Moderna - Modern Medicine*. 2019 ; 26(3):105. <https://doi.org/10.31689/rmm.2019.26.3.105>
30. Jamalvi W, Hassan S, Saeed S, Raza M. Knowledge and attitude of medical students towards breastfeeding practices. *International Journal on Women Empowerment*.2020; 6(1): 10-15.
31. Chowdhury R, Sinha B, Sankar M J, et al. Breastfeeding and maternal health outcomes: a systemic review and meta-analysis. *Acta paediatrica*.2015; 104: 96-113.
32. Anugerawati MT, Samsuria IK, Kurnia Setiawan LIMIJADI IE, Retnoningrum D, Rachmawati B. Differences in Ca 15-3 and Homocysteine Levels in Patients with Benign Tumor and Breast Cancer. *Medicina Moderna - Modern Medicine*. 2024 ; 31(1). <https://doi.org/10.31689/rmm.2024.31.1.57>
33. MOHAMMAD SM. Evaluating AFC and Hormonal Profiles in Infertility: Insights into PCOS Diagnosis in Samawa City, Iraq. *Medicina Moderna - Modern Medicine*. 2025; 32(3) : 263. <https://doi.org/10.31689/rmm.2025.32.3.263>
34. Amin TT, Abdulrahman AG, Al Muhaidib NS, et al. Breastfeeding attitude and knowledge among future female physicians and teachers in Saudi Arabia. *Health science Journal*.2014; 8(1): 102-115.
35. Amjum Q, Ashfaq T, Siddiqui H. Knowledge regarding breastfeeding practices among medical students of Ziauddin University Karachi. *JPMA*.2007; 57(10): 480-483.
36. Jasim SK, Al-Momen H, Al-Asadi F. Maternal anemia prevalence and subsequent neonatal complications in Iraq. *Open Access Macedonian Journal of Medical Sciences*. 2020 Mar 10;8(B):71-5.
37. Centers for Disease Control and Prevention (CDC). Maternal or infant illness or conditions. Available from: <https://www.cdc.gov/breastfeeding/breastfeeding-specialcircumstances/maternal-or-infant-illnesses/hepatitis.html>. Accessed date: July 14, 2026.
38. DODOT MD, DUPORE-DODOT I, TOMA L, ILIESCU L. Key Factors Influencing qHBsAg Dynamics in Chronic Hepatitis B Patients During Treatment with Direct Acting Antivirals. *Medicina Moderna - Modern Medicine*. 2020 ;27(1).<https://doi.org/10.31689/rmm.2020.27.1.11>
39. World Health Organization (WHO), breastfeeding and maternal TB. Available from:https://www.who.int/maternal_child_adolescent/documents/pdfs/breastfeeding_and_maternal_tb.pdf. Accessed date: July 14, 2026.
40. Al-Zwaini EJ, Al-Haili SJ, Al-Alousi TM. Knowledge of Iraqi primary healthcare physicians about breastfeeding. *East Mediterr Health J* 2008; 14(2):381-388.
41. Shakoob JA, Mahmood NA. Knowledge and performance of exclusive breastfeeding among mothers in Dibis District, Kirkuk Governorate, Iraq: A population- based study. *Al-Anbar Medical Journal*.2025; 21(4):284-289.