

Knowledge and Performance of Exclusive Breastfeeding among Mothers in Dibis District, Kirkuk Governorate, Iraq: A Population-based Study

Jenan Akbar Shakoor,^{1,*} Nazar Ahmed Mahmood,¹ and Asar Abdul wahid Salih²

¹Community Health Nursing Department, College of Nursing, University of Kirkuk, Kirkuk City, Iraq.

²General Health Department, Kirkuk Health Directorate, Kirkuk City, Iraq.

(Received : 15 May 2025; Accepted : 20 August 2025; First published online: 1 October 2025)

ABSTRACT

Background: Despite its vital role in child health, breastfeeding is often hindered by social, cultural, and health system barriers.

Objectives: To assess mothers' knowledge and practice of exclusive breastfeeding (EBF) in Dibis district, Kirkuk, and examine its association with selected demographic factors.

Materials and methods: A household-based descriptive cross-sectional study was conducted in Dibis, Kirkuk Governorate, from June 2020 to January 2023, involving 1823 mothers of children aged $\leq$ two years. Data were collected using a structured questionnaire covering sociodemographic characteristics, knowledge of EBF, and actual breastfeeding practices. Descriptive and inferential statistics were used to analyze associations between sociodemographic factors and mothers' knowledge and performance.

Results: Mothers' knowledge and performance regarding EBF were at a moderate level. Significant associations were observed between EBF and the mother's level of education (P -value = 0.046). The mother's age at marriage (P -value = 0.090) and the number of family members (P -value = 0.074) were not statistically significant. Binary logistic regression analysis indicated that mothers who regularly visited primary health care centers were twice as likely to practice EBF (OR = 2.011; 95% CI: 1.263–3.203). Among all predictors, normal vaginal delivery emerged as the strongest factor, with mothers who delivered vaginally being over four times more likely to exclusively breastfeed (OR = 4.547; 95% CI: 3.181–6.496).

Conclusion: Mothers showed moderate knowledge and performance, with education, delivery type, and healthcare access identified as key factors. Further research should explore cultural and systemic barriers to breastfeeding in Iraq.

Keywords: Exclusive breastfeeding; Maternal knowledge; Breastfeeding performance; Infant feeding.

DOI: 10.33091/amj.2025.160295.2243

© 2025, Al-Anbar Medical Journal



INTRODUCTION

Exclusive breastfeeding (EBF) is one of the crucial practices to promote the growth and development of an infant. It is defined as the practice of feeding an infant with breast milk only for the first six months of life, without any additional food or liquid. The exceptions including oral rehydration solutions, drops, and syrups that contain vitamins, minerals, supplements, or medicines. Breastfeeding is then recommended for the next two years alongside appropriate complementary foods [1].

EBF is known to reduce infant and child morbidity and mortality rates effectively. It has numerous advantages for both the mother and the baby, such as a lower risk of obesity and type 2 diabetes, and reduced incidence of diarrhea and pneumonia in infants. In addition, long-term breastfeeding reduces the incidence of ovarian and breast cancer and supports natural contraception [2–4].

Although the global strategy targets 57 low- and middle-income countries, only 37% of infants under six months are exclusively breastfed, falling short of the WHO's recommended rate of 50% [5].

In Iraq, the Ministry of Health and Environment, in collaboration with the WHO and United Nations Children's Fund (UNICEF), has introduced several national strategies

* Corresponding author: E-mail: jinanshukur@uokirkuk.edu.iq
This is an open-access article under the CC BY 4.0 license

to promote EBF. These include awareness campaigns during World Breastfeeding Week, the Baby-Friendly Hospital Initiative (BFHI), and enforcement of policies aligned with the International Code of Marketing of Breast-milk Substitutes. In addition, training programs for healthcare providers and the distribution of educational materials have further supported these efforts, reflecting a strong national commitment to improving breastfeeding practices [6].

Improving EBF can be influenced by many factors. These include personal characteristics such as age, education, income, desire to breastfeed, a history of EBF, and the mother-child bond [7, 8]. Environmental aspects, such as support from friends, family, and community as well as advice from medical professionals, are also important [9]. Aside from the demands of the workplace and office environment, cultural beliefs can pose a barrier to breastfeeding, particularly in low-income countries [10]. In addition, the type of delivery can significantly influence the initiation of breastfeeding. Women who undergo vaginal birth after a previous caesarean section (VBAC) are more likely to initiate breastfeeding than those who have a planned repeat caesarean section [11].

To enhance the EBF rate, mothers require proper education, care, and professional support to promote early initiation of breastfeeding and to avoid and overcome obstacles. These should be provided during antenatal, birth, and postnatal care to prepare mothers for EBF [12]. This is because many new mothers lack adequate breastfeeding knowledge and often rely on informal advice and instructions from relatives, which may not always be reliable. Although many women are aware of the benefits of breastfeeding, familiarity with correct breastfeeding techniques remains limited [13].

Starting early prenatal care and postpartum education with regular breastfeeding counselling are essential strategies to improve maternal knowledge and performance of breastfeeding. This is a long-standing challenge for the community. Although EBF is a longstanding public health challenge, it has not received significant attention, and it continues to face multiple obstacles in many communities, including Iraq. Despite national efforts to promote breastfeeding and particularly in underserved areas like Dibis district, there is a lack of updated, community-based data on mothers' knowledge and actual breastfeeding practices. This gap limits the ability of health planners to design targeted interventions. Therefore, this study was conducted to assess the current levels of knowledge and performance related to EBF among mothers in this region, and to identify factors that may influence these practices.

MATERIALS AND METHODS

A household-based population study with a descriptive cross-sectional design was conducted in Dibis District of Kirkuk Governorate, Iraq, from June 2020 to January 2023. Kirkuk is a governorate in northern Iraq, which is 148 miles (238 km) north of Baghdad. It comprises four districts: Kirkuk (where Kirkuk city is located), Dibis, Hawija, and Daquq. Dibis district is located approximately 45 kilometers northwest of Kirkuk city and had an estimated population of 95,166 in 2008. Dibis district was established as a small village in 1953 and subsequently developed into 65 small towns.

The study obtained ethical approval from the Scientific Committee of the College of Nursing, University of Kirkuk (Ref. No. 7/47/276, dated 10-2-2020), and official permission was granted by the Kirkuk Directorate of Health (Ref.

No. 7575, dated 13-2-2020). Informed consent was obtained from all participants after explaining the study objectives and their right to refuse or withdraw from the study at any time without consequences. A list of 24 primary healthcare centres (PHCCs) and sub-centres in suburban and rural areas was obtained from the Statistics Department of the Kirkuk Directorate of Health (DOH).

The sample size was determined using Epi InfoTM 7 software based on the following assumptions: 95% confidence interval, an acceptable margin of error of 2%, and a breastfeeding rate of 76% (determined from a study conducted among women in the city of Kirkuk) [14], and a design effect of 0.1. Based on these assumptions, the calculated minimum sample size required was 1,674 respondents. The sample was expanded considering a potential non-response of 10%. The resulting final sample size was 1,850 respondents. Of the 1,850 participants who primarily participated, 27 questionnaires were excluded due to incomplete responses, resulting in a final sample of 1,823 participants included in the study. A multistage sampling technique was used for data collection. In the first stage, 12 centers were selected from 24 centers using simple random sampling. In the second step, households with eligible mothers within the catchment area of the 12 health centres were purposively selected. Finally, women meeting the eligibility criteria were selected from each household.

Primiparous and multiparous mothers with children aged up to 2 years living in Dibis district who were willing to participate in the study were included. In contrast, those who have no interest in participating, primigravid women, mothers with children more than 2 years old were excluded from the study. The survey instrument used to collect data was the researcher-developed questionnaire, which was based on a comprehensive literature review [2, 15]. It consisted of three sections. The first section gathered socio-demographic variables such as age of mothers at marriage, divided into (5-year intervals), number of family members, and mother's education level. Family income was divided into three groups: sufficient, barely sufficient, and insufficient [16]. This section also includes questions on the place and types of delivery. The second section included five questions (dichotomous: yes or no; and multiple choice) that assessed participants' knowledge about breastfeeding. A correct answer received a score of 1, and an incorrect answer received a score of 0. Knowledge scores ranged from 0 to 5, with a higher score indicating greater knowledge about breastfeeding. Knowledge level was categorized as high (4-5), medium (2-3), or low (0-1). The final section of the questionnaire was designed to measure breastfeeding performance using six questions (dichotomous: yes or no; and multiple-choice questions). A score of 1 was given for mothers' performance in breastfeeding, while a score of 0 was given for mothers' non-performance. Performance scores ranged from 0 to 5, with higher scores indicating better breastfeeding performance.

The questionnaire was validated by six experts: two from the Department of Community Medicine at Hawler Medical University, two from the Department of Maternal and Neonate Health, College of Nursing, University of Kirkuk and two from the Directorate of Health in Kirkuk. The questionnaire was pilot-tested on 30 women who met the eligibility criteria but were excluded from the final sample. This pilot test was conducted to determine the reliability of the questionnaire. Reliability was measured using the test-retest method with a value of 0.80. With only minor modifications, this result showed that the questionnaire was reliable [17].

Table 1. Association of specific demographic characteristics of the 1,823 participants and exclusive breastfeeding. PHCC: Primary health care center

Variables	Number (%)	Exclusive breastfeeding		P-value
		Performed Number (%)	Non Performed Number (%)	
Maternal age at marriage (Years)				
< 18	405 (22.2)	357 (88.1)	48 (11.9)	0.090
18–22	807 (44.3)	730 (90.5)	77 (9.5)	
23–27	461 (25.3)	428 (92.8)	33 (7.2)	
≥ 28	150 (8.2)	132 (88.0)	18 (12.0)	
Number of family members				
3–5	1184 (64.9)	1057 (89.3)	127 (10.7)	0.074
6–8	504 (27.6)	468 (92.9)	36 (7.1)	
> 8	135 (7.4)	122 (90.4)	13 (9.6)	
Educational level of mother				
Illiterate	533 (29.2)	464 (87.1)	69 (12.9)	0.046
Read and write	67 (3.7)	62 (92.5)	5 (7.5)	
Primary school	595 (32.6)	547 (91.9)	48 (8.1)	
Secondary school	330 (18.1)	300 (90.9)	30 (9.1)	
Institute/College	298 (16.3)	274 (91.9)	24 (8.1)	
Age of the child (Year)				
< 1	180 (9.9)	163 (90.6)	17 (9.4)	0.920
1–2	1643 (90.1)	1484 (90.3)	159 (9.7)	
Head of family income/month				
Sufficient	514 (28.2)	452 (87.9)	62 (12.1)	0.045
Barely sufficient	1220 (66.9)	1117 (91.6)	103 (8.4)	
Insufficient	89 (4.9)	78 (87.6)	11 (12.4)	
Types of delivery				
Normal vaginal delivery	1294 (71.0)	1223 (94.5)	71 (5.5)	0.001
Cesarean section	529 (29.0)	429 (80.2)	105 (19.8)	
Place of delivery				
Home	307 (16.8)	289 (94.1)	18 (5.9)	0.014
Hospital	1516 (83.2)	1358 (89.6)	158 (10.4)	
Visiting PHCC				
Regular	1612 (88.4)	1467 (91.0)	145 (9.0)	0.008
Irregular	211 (11.6)	180 (85.3)	31 (14.7)	

Data were collected through household interviews conducted by trained primary health care workers from the 12 health centers. These data collectors were trained on the correct data collection procedures.

The Statistical Package for Social Sciences (SPSS), version 27 (IBM, New York, USA) software was used for data processing and statistical analysis. Statistical analysis was performed using a simple descriptive analysis approach (frequency and percentage; means and standard deviations) and an inferential analysis approach (Chi-square) for the association between sociodemographic variables and breastfeeding knowledge and performance. Variables that showed a significant association with breastfeeding in the Chi-square test were further analyzed using a binary logistic regression model with a significance level set at $P\text{-value} < 0.05$.

RESULTS

Of the 1,823 mothers who participated in the study, 44.3% were aged 18 to 22 years old, and 32.6% had a primary school education. Most of the children (90.1%) were aged between 1 and 2 years, and 66.9% of the families reported just adequate living. Furthermore, 71% of mothers had normal vaginal deliveries, 83.2% of deliveries took place in a hospital, and

88.4% of mothers regularly visited PHCCs. EBF was significantly associated with the mother's education level ($P\text{-value} = 0.046$), the monthly income of the head of the household ($P\text{-value} = 0.045$), and the mode of delivery ($P\text{-value} = 0.001$). Another significant association was found between EBF and place of delivery ($P\text{-value} = 0.014$) and attendance of PHCCs ($P\text{-value} = 0.008$). On the other hand, no statistically significant ($P\text{-value} > 0.05$) association was found between EBF and other factors (Table 1).

The mothers' level of knowledge was moderate for 52.8% of participants. Similarly, 55.5% of mothers showed moderate performance (Figure 1).

According to the mothers' performance, 90% of them exclusively breastfed their children (Figure 2).

Binary logistic regression revealed that illiterate mothers had a significant association with EBF (OR = 0.467, 95% CI: 0.272–0.799). Regular visits to PHCC increase the rate of EBF (OR = 2.011, 95% CI: 1.263–3.203). However, normal vaginal delivery was the strongest predictor of EBF (OR = 4.547, 95% CI: 3.181–6.496) as shown in Table 2.

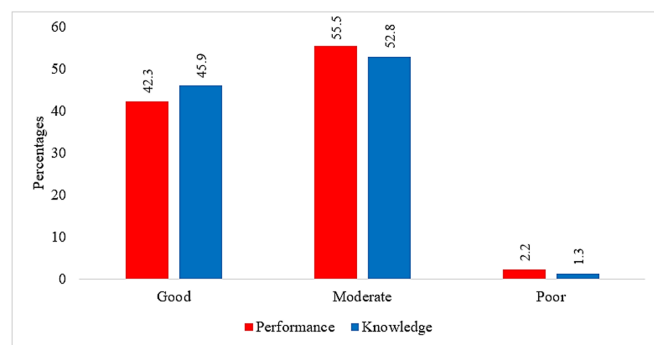


Figure 1. Distribution of the 1,823 participants according to their level of knowledge and performance related to exclusive breastfeeding.

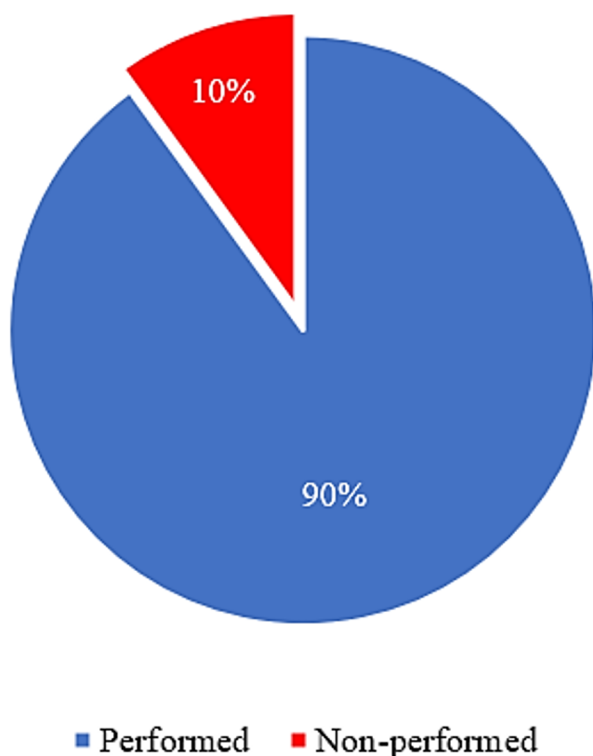


Figure 2. Distribution of the 1,823 participants according to performance of exclusive breastfeeding.

DISCUSSION

The long-term health of newborns and infants is significantly influenced by breastfeeding [18]. The findings of the present study revealed that the level of knowledge and performance regarding EBF among mothers in Dibis district was moderate; factors such as maternal education, type of delivery, and access to healthcare settings have a role in shaping the breastfeeding behaviours. In the current study, the proportion of individuals in the sample who were EBF was 90%, a rate that stands out compared to findings from other regions in Iraq. For example, despite the implementation of the BFHI at Azadi Teaching Hospital in Kirkuk City since 1992, a study reported that the quality and consistency of BFHI

Table 2. Factors related to exclusive breastfeeding among 1,823 mothers using binary logistic regression analysis*.

Covariates	Exclusive breastfeeding		P-value
	OR	95% CI	
Educational level/mother			
Illiterate	0.467	0.272–0.799	0.006
Read and write	0.643	0.226–1.827	0.407
Primary school	0.774	0.449–1.335	0.353
Secondary school	0.726	0.406–1.299	0.281
Institute/College (Reference)			
Head of family income/month			
Sufficient	0.840	0.402–1.752	0.641
Barely sufficient	1.313	0.655–2.631	0.442
Insufficient (Reference)			
Normal vaginal delivery	4.547	3.181–6.496	0.001
Delivery at hospital	0.917	0.523–1.607	0.762
Regular visit to PHCC	2.011	1.263–3.203	0.003

* OR= Odds Ratio, CI= Confidence Interval.

practices remained suboptimal, with low rates of EBF initiation observed [19]. Similarly, a study conducted in Erbil found that only 26.5% of the 306 mothers breastfed their babies exclusively for six months [20]. These regional variations could be explained by differences in sample size, population type, and the cultural attitudes of the current study population, which is sub-rural and follows the tradition of feeding babies naturally up to 2 years. This may have contributed to the higher EBF rates observed. Such findings highlight the importance of aligning breastfeeding promotion strategies with local sociocultural dynamics.

Better education often provides mothers with more opportunities for EBF. Mothers with higher levels of education generally have improved chances of practicing it. This pattern of observations has been demonstrated in previous work, showing that there is a positive association between maternal education and the practice of EBF, as well as a strong association between health knowledge and education [21–23]. A recent study conducted among young mothers in China reported that higher levels of education have a positive impact on the breastfeeding process and the rate of EBF [24]. The current study's results revealed a significant relationship between the mother's education level and EBF. This may be explained by the study sample's cultural context, where traditions and religious beliefs are often promoted for at least two years. The type of delivery plays a role in the initiation of breastfeeding [25]. This study confirmed this and showed that normal vaginal delivery is the strongest predictor of EBF, meaning that women who had a vaginal delivery were more likely to breastfeed in the first hour after birth than women who had a caesarean section.

The place of delivery also influenced the initiation of EBF, and this is consistent with evidence in the literature that mothers who give birth in a hospital are more likely to initiate breastfeeding than mothers who do not [26]. This finding is expected since hospital healthcare providers undoubtedly encourage mothers to initiate breastfeeding for the first time after delivery. The result is interesting and helps justify the importance of giving birth in hospitals.

Regular attendance at PHCCs for antenatal and postnatal

care may impact mothers' breastfeeding performance. This finding is consistent with the results of other publications in the literature [27–29]. The finding reinforces the general assumption that mothers were aware of EBF and that their primary source of information was health facilities. This result highlighted two things: (1) mothers need to visit PHCCs regularly during pregnancy, and (2) healthcare providers in the health facilities should provide adequate information about EBF through training programs and regularly assess mothers' knowledge by asking questions about EBF at every visit.

This study has several strengths. First, the large sample size of 1,823 participants provides statistical power and reliability to the study findings. Second, the use of binary logistic regression analysis allowed for the control of potential confounding variables and enabled the identification of independent predictors of EBF. Finally, this study addresses a topic of significant public health importance, offering valuable insights for maternal and child health programs.

However, this work is subject to certain limitations. First, the cross-sectional study design limits the ability to establish causality between the examined variables and EBF. Additionally, potential selection bias may have been introduced because the sampling frame relied on health center catchment areas and purposive household selection, which might lead to an underrepresenting of populations not accessing healthcare centers. While the study mentions cultural beliefs as barriers, it does not deeply explore how local traditions or misconceptions may affect breastfeeding practices in the sample population, which is an area for research to examine how local traditions, family influences, and cultural misconceptions impact EBF, to support more culturally sensitive health education programs. Furthermore, the findings' generalizability may be limited to populations with similar cultural, economic, and healthcare settings and may not fully extend to more urban or ethnically diverse areas of Iraq. Finally, these results are limited because the study focused primarily on mothers' perceptions and did not examine health system stressors. Therefore, these limitations should be considered in future studies.

CONCLUSION

Mothers' knowledge and performance on EBF were moderate. The findings revealed the role of maternal education, type of delivery, and healthcare access in shaping breastfeeding behaviors. Further research is needed to explore the long-term impact of educational interventions and culturally specific barriers to breastfeeding in Iraq.

ETHICAL DECLARATIONS

Acknowledgments

The authors sincerely thank all the mothers who participated in this study for their cooperation. Special appreciation is also extended to the staff of the Primary Health Care Centers in Dibis District for their support during data collection.

Ethics Approval and Consent to Participate

The project was approved by the Research Ethics Committee of the College of Nursing, University of Kirkuk (Reference No.7/47/276, dated 10-2-2020). Official approval to conduct the study was obtained from the Kirkuk Health Directorate; (Reference No. 7575 dated 13-2-2020). Informed consent was obtained from all participants after explaining the study's purpose and their right to refuse or withdraw from the study at any time without consequences. Participants' confidentiality and data protection were ensured throughout the research process. All collected data were anonymized and handled with strict confidentiality. Access to the data was limited exclusively to the research team to maintain privacy and prevent unauthorized access.

Consent for Publication

Not applicable (no individual personal data included).

Availability of Data and Material

Data generated during this study are available from the corresponding author upon reasonable request.

Competing Interests

The authors declare that there is no conflict of interest.

Funding

No funding.

Authors' Contributions

The study was designed and conducted by Shakoor JA. Data collection and organization were carried out by Shakoor JA and Salih AA. Data analysis and interpretation were performed by Mahmood NA. The initial and final drafts of the manuscript were written by Shakoor JA and reviewed by Mahmood NA. All authors read and approved the final version of the manuscript.

REFERENCES

- [1] F. M. Raouf, A. H. Al-Anee, and T. A. Hamada. Assessment the relation between introduction of the solid foods and napkins rash occurrence in children below two years old. *Journal of Kirkuk Medical College*, 6(1):9, 2018.
- [2] C. Topothai *et al.* Exclusive breastfeeding experiences of thai mothers in metropolitan bangkok. *International Journal of Women's Health*, 14:155–166, 2022.
- [3] V. H. A. Alqani. A cross-sectional study investigates the use of lactational amenorrhea for contraception among women. *Academic International Journal of Medical Sciences*, 2(2):39–46, 2024.
- [4] G. R. Couto, V. Dias, and I. de Jesus Oliveira. Benefits of exclusive breastfeeding: An integrative review. *Nursing Practice Today*, 7(4):245–254, 2020.
- [5] X. N. Zong, H. Wu, M. Zhao, C. G. Magnussen, and B. Xi. Global prevalence of who infant feeding practices in 57 lmics in 2010–2018 and time trends since 2000 for 44 lmics. *EClinicalMedicine*, 37:1–9, 2021.
- [6] H. K. Sabeeh, S. H. Ali, and A. Al-Jawaldeh. Iraq is moving forward to achieve global targets in nutrition. *Children*, 9(2):215, 2022.
- [7] V. Diwakar, M. Malcolm, and G. Naufal. Violent conflict and breastfeeding: the case of iraq. *Conflict and Health*,

- 13(1):61, 2019.
- [8] N. Alissa and M. Alshareef. Factors influencing exclusive breastfeeding in saudi arabia. *Healthcare*, 12(6):639, 2024.
 - [9] S. R. Quebu, D. Murray, and U. B. Okafor. Barriers to exclusive breastfeeding for mothers in tswelopele municipality, free state province, south africa: a qualitative study. *Children*, 10(8):1380, 2023.
 - [10] A. K. Manyeh, A. Amu, D. E. Akpakli, J. E. Williams, and M. Gyapong. Estimating the rate and determinants of exclusive breastfeeding practices among rural mothers in southern ghana. *International Breastfeeding Journal*, 15(1):7, 2020.
 - [11] J. Tracz, D. Gajewska, and J. Myszkowska-Ryciak. The association between the type of delivery and factors associated with exclusive breastfeeding practice among polish women—a cross-sectional study. *International Journal of Environmental Research and Public Health*, 18(20):10987, 2021.
 - [12] A. Maleki, E. Faghihzadeh, and S. Youseflu. The effect of educational intervention on improvement of breastfeeding self-efficacy: A systematic review and meta-analysis. *Obstetrics and Gynecology International*, 2021(1):5522229, 2021.
 - [13] N. B. K. Aktürk and M. Kolcu. The effect of postnatal breastfeeding education given to women on breastfeeding self-efficacy and breastfeeding success. *Revista da Associacao Medica Brasileira*, 69(8):e20230217, 2023.
 - [14] N. Mahmud. Knowledge of breastfeeding: A descriptive study among mothers in kirkuk governorate. *Iraqi National Journal of Nursing Specialties*, 24(2):84–93, 2011.
 - [15] H. A. Abdullah and I. Y. Abdulmalek. Factors affecting knowledge and practice towards breastfeeding in women who have recently delivered in duhok city. *Journal of Duhok University*, 25(2):105–113, 2022.
 - [16] W. Omer and T. Al-Hadithi. Developing a socioeconomic index for health research in iraq. *Eastern Mediterranean Health Journal*, 23(10):670–677, 2017.
 - [17] C. Boswell and S. Cannon. *Introduction to Nursing Research: Incorporating Evidence-Based Practice*. Jones & Bartlett Learning, 2018.
 - [18] K. Bala, B. Sahni, S. Bavoria, and A. Narangyal. Knowledge, attitude, and breast-feeding practices of postnatal mothers in jammu: A community hospital based cross sectional study. *Journal of Family Medicine and Primary Care*, 9(7):3433–3437, 2020.
 - [19] F. A. Ahmed Gli, D. Spence, L. Johnston, F. Lynn, R. Tubman, and Z. M. Sadiq. Evaluation of the baby friendly hospital initiative programme in two hospitals designated “baby-friendly” in kirkuk city, iraq. *Indian Journal of Public Health Research & Development*, 10(9), 2019.
 - [20] N. S. Sdeeq and A. M. Saleh. Determinants of exclusive breastfeeding practice for the first six months in mothers with infants between 6 and 15 months of age in erbil city, iraq: A cross-sectional study. *Zanco Journal of Medical Sciences*, 25(1):406–414, 2021.
 - [21] A. D. Laksono, R. D. Wulandari, M. Ibad, and I. Kusriani. The effects of mother’s education on achieving exclusive breastfeeding in indonesia. *BMC Public Health*, 21(1):14, 2021.
 - [22] T. O. de Souza, T. E. de V. Morais, C. de C. Martins, J. de Bessa, and G. O. Vieira. Effect of an educational intervention on the breastfeeding technique on the prevalence of exclusive breastfeeding. *Revista Brasileira de Saúde Materno Infantil*, 20(1):297–304, 2020.
 - [23] J. P. C. Dukuzumuremyi, K. Acheampong, J. Abesig, and J. Luo. Knowledge, attitude, and practice of exclusive breastfeeding among mothers in east africa: a systematic review. *International Breastfeeding Journal*, 15(1):70, 2020.
 - [24] L. Hamze, J. Mao, and E. Reifsnider. Knowledge and attitudes towards breastfeeding practices: A cross-sectional survey of postnatal mothers in china. *Midwifery*, 74:68–75, 2019.
 - [25] S. A. B. Murad and A. K. Mohammed. Impact mode of delivery on breastfeeding practice among women delivering in maternity teaching hospital sulaimani city. *Mosul Journal of Nursing*, 9:315–332, 2021.
 - [26] M. Hasan, M. N. Hassan, M. S. I. Khan, M. A. Tareq, and M. S. Afroj. Prevalence, knowledge, attitudes and factors associated with exclusive breastfeeding among mothers in Dhaka, Bangladesh: A cross-sectional study. *Population Medicine*, 3(September):1–7, 2021.
 - [27] E. Hoyos-Loya *et al.* Barriers to promoting breastfeeding in primary health care in mexico: a qualitative perspective. *Frontiers in Nutrition*, 10:1278280, 2024.
 - [28] N. N. Kamal, F. H. Ismael, M. G. Abdelrehim, and A. S. El-Khateeb. Breastfeeding practice and perception among women attending primary health care center in giza, egypt. *Minia Journal of Medical Research*, 32(3):29–39, 2021.
 - [29] M. W. Alamirew, N. H. Bayu, N. Birhan Tebeje, and S. F. Kassa. Knowledge and attitude towards exclusive breast feeding among mothers attending antenatal and immunization clinic at dabat health center, north-west ethiopia: A cross-sectional institution based study. *Nursing Research and Practice*, 2017(1):6561028, 2017.