

Awareness, attitudes and practices related to exclusive breastfeeding among mothers at the Al-Bayda Medical Center – Libya

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الوعي والمواقف والممارسات المتعلقة بالرضاعة الطبيعية الخالصة بين الأمهات في مركز الطبي البيضاء – ليبيا

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Abstract

Background: Exclusively breastfeeding (EBF) during the first six months of life is acknowledged as a key strategy to enhance child health, reduce infant mortality, and promote maternal well-being. Despite its established benefits, global adherence to EBF practices remains suboptimal, with significant disparities between regions and socioeconomic groups. **Objective:** The purpose of this study was to determine the prevalence of breastfeeding, evaluate "knowledge, attitudes, and practices" (KAP) regarding EBF, and examine the association among socio-demographic variables and EBF knowledge and practice among mothers attending antenatal care (ANC) at El-Beyda Medical Center, Libya. **Methodology:** A descriptive cross-sectional approach was used in this study to evaluate the prevalence of exclusive breastfeeding (EBF) and examine the "knowledge, attitudes, and practices (KAP)" related to EBF among participants attending antenatal care (ANC) services at El-Beyda Medical Center, Libya. The study population included all maternal patients attending gynecology clinics data collection period from September 1, 2024, to December 15, 2024. The data were obtained through structured face-to-face interviews, using a questionnaire modified from previous studies and tailored to the local context. The collected data were coded and analyzed using SPSS version 23. Descriptive statistics, Pearson's correlation (bivariate) was used to explore relationships among KAP variables, while the Kruskal-Wallis test assessed associations between sociodemographic factors and KAP. Additionally, a one-sample t-test was applied to compare the sample mean with theoretical benchmarks. **Result and Discussion:** Knowledge of breastfeeding was generally moderate, with an overall mean score of 12.2 ± 5.33 . While 82% correctly identified breast milk as nutritionally sufficient, gaps were found regarding exclusive breastfeeding for six months, where 15% of mothers demonstrated incorrect knowledge. Attitudes revealed a reliance on formula feeding due to workplace challenges and societal norms, emphasizing the need for supportive environments. Practices showed that 84.2% of mothers provided colostrum, but only 51% adhered to exclusive breastfeeding, underscoring discrepancies between awareness and practice. Correlation analysis revealed KAP domains

and sociodemographic traits do not significantly correlate, except for cesarean delivery, which correlated with better breastfeeding practices due to enhanced postnatal counseling. **Conclusion:** Targeted education, supportive workplace policies, and breastfeeding-friendly environments are crucial to overcoming these challenges. Addressing these barriers can promote optimal breastfeeding practices, enhancing maternal and child health outcomes.

Keywords: Bbreastfeeding attitudes, breastfeeding barriers, breastfeeding practices, colostrum; exclusive breastfeeding (EBF).

الملخص

الخلفية: يُعدّ الرضاعة الطبيعية الخالصة خلال الأشهر الستة الأولى من عمر الطفل استراتيجية أساسية لتعزيز صحة الطفل، وخفض وفيات الرضع، ودعم صحة الأم. ورغم فوائدها المؤكدة، لا يزال الالتزام العالمي بممارسات الرضاعة الطبيعية الخالصة دون المستوى الأمثل، مع وجود تفاوتات كبيرة بين المناطق والفئات الاجتماعية والاقتصادية. الهدف: هدفت هذه الدراسة إلى تحديد مدى انتشار الرضاعة الطبيعية، وتقييم المعارف والمواقف والممارسات المتعلقة بالرضاعة الطبيعية الخالصة، ودراسة العلاقة بين المتغيرات الاجتماعية والديموغرافية ومعرفة وممارسات الرضاعة الطبيعية الخالصة لدى الأمهات اللاتي يراجعن عيادات رعاية ما قبل الولادة في المركز الطبي بالبيضاء، ليبيا. المنهجية: استُخدم في هذه الدراسة منهج وصفي مقطعي لتقييم مدى انتشار الرضاعة الطبيعية الخالصة ودراسة المعارف والمواقف والممارسات المتعلقة بها لدى المشاركات اللاتي يراجعن عيادات أمراض النساء خلال فترة جمع البيانات من 1 سبتمبر 2024 إلى 15 ديسمبر 2024. جُمعت البيانات من خلال مقابلات شخصية منظمة، باستخدام استبيان مُعدّل من دراسات سابقة ومُكيّف مع السياق المحلي. جرى ترميز البيانات المُجمّعة وتحليلها باستخدام برنامج SPSS الإصدار 23. استُخدمت الإحصاءات الوصفية ومعامل ارتباط بيرسون (ثنائي المتغيرات) لاستكشاف العلاقات بين متغيرات المعرفة والمواقف والممارسات، بينما قيّم اختبار كروسكال-واليس الارتباطات بين العوامل الاجتماعية والديموغرافية والمعرفة والمواقف والممارسات. بالإضافة إلى ذلك، طُبّق اختبار t لعينة واحدة لمقارنة متوسط العينة بالمعايير النظرية. النتائج والمناقشة: كانت معرفة الرضاعة الطبيعية متوسطة بشكل عام، بمتوسط إجمالي قدره 12.2 ± 5.33 . في حين أن 82% من الأمهات حددن حليب الثدي بشكل صحيح على أنه كافٍ من الناحية الغذائية، وُجدت فجوات فيما يتعلق بالرضاعة الطبيعية الخالصة لمدة ستة أشهر، حيث أظهرت 15% من الأمهات معرفة غير صحيحة. أظهرت المواقف اعتماد الأمهات على الحليب الصناعي بسبب تحديات العمل والأعراف المجتمعية، مما يؤكد الحاجة إلى بيئات داعمة. وأظهرت الممارسات أن 84.2% من الأمهات قدّمن اللبأ، لكن 51% فقط التزم بالرضاعة الطبيعية الخالصة، مما يُبرز التباين بين الوعي والممارسة. وكشف تحليل الارتباط أن مجالات المعرفة والمواقف والممارسات والخصائص الاجتماعية والديموغرافية لا ترتبط ارتباطاً وثيقاً، باستثناء الولادة القيصرية، التي ارتبطت بممارسات رضاعة طبيعية أفضل نتيجةً لتحسين الاستشارات ما بعد الولادة. الخلاصة: يُعدّ التثقيف المُوجّه، وسياسات العمل الداعمة، والبيئات المُشجعة للرضاعة الطبيعية أموراً بالغة الأهمية للتغلب على هذه التحديات. ويمكن أن يساهم معالجة هذه العوائق في تعزيز ممارسات الرضاعة الطبيعية المثلى، وتحسين صحة الأم والطفل.

الكلمات الدالة: مواقف الرضاعة الطبيعية، ومعوّقات الرضاعة الطبيعية، وممارسات الرضاعة الطبيعية، واللبأ؛ الرضاعة الطبيعية الخالصة

Introduction

Exclusively breastfeeding (EBF) is defined as giving a baby only breast milk, and no any other food or drink, including water, for the earliest six months of life, except for supplements containing vitamins , minerals, vitamins, or medications(Hossain, Islam, Kamarul, & Hossain, 2018). According to the World Health Organization, breastfeeding is a typical method for providing newborns the nutrients they require for appropriate growth and development(W. H. O. WHO, 2010). Enhancing mother morbidity, lowering baby and toddler morbidity and mortality, and assisting in the cost-controlling of medical treatment, are all made possible by breastfeeding(James & Lessen, 2009).

The foundation for healthy growth and development is breast milk, which has the proper quantity of readily available, easily digested nutrients. It is the most cost-effective public health strategy that can lower newborn and child morbidity and mortality.(Cope & Allison, 2008).Because breastfeeding has been shown to improve mother and child health, the World Health Organization recommends exclusive breastfeeding for the first six months after delivery, followed by continued breastfeeding with appropriate complementary foods after six months, and continued breastfeeding for at least two years.(Cope & Allison, 2008).

Breastfeeding has been reported to save 1.4 million lives in impoverished nations and can improve a child's tolerance to all preventative interventions.(Black, Morris, & Bryce, 2003).

Furthermore, (EBF) is recognized as a key strategy that serves as one of the best strategies for reducing early newborn mortality. Each year, the implementation of optimal breastfeeding has the potential to prevent almost 1.4 million child deaths under five years of age worldwide(Sinshaw, Ketema, & Tesfa, 2015). Infant feeding through exclusive natural lactation as well stimulates healthy brain growth and is linked to children and teenagers performing better on cognitive tests.(Victora et al., 2015). Beside to enhancing the mother-child bond, breastfeeding, it reduces the incidence of certain childhood illnesses, including gastrointestinal infections, midlife infections, pneumonia, unexpected newborn mortality, diabetes, malocclusion and diarrhea (Holtzman & Usherwood, 2018; Ogbo, Nguyen, Naz, Agho, & Page, 2018).Lactation has been shown to help moms lose weight and reduce the incidence of bleeding, ovarian cancer, breast cancer, depression after childbirth, and endometrial cancer(Holtzman & Usherwood, 2018; Saadeh & Benbouzid, 1990). Additionally, the breastfeeding amenorrhea strategy is a crucial choice for postpartum family planning.(Idris, Tafeng, & Elgorashi, 2015; Saadeh & Benbouzid, 1990).

The World Health Assembly (WHA) established a target to raise the exclusive breastfeeding (EBF) rate for children from birth to six months to at least 50% between 2012 and 2025.(WHO & Unicef, 2020).Commitments to these guidelines vary globally, only 38% of babies consume only breast milk for the first six months of their lives.(WHO & Unicef, 2020). Nations with high incomes, including the USA (19%), the UK (1%), and Australia (15%)(Buckland, Hector, Kolt, Fahey, & Arora, 2020), exhibit a shorter duration of breastfeeding compared to middle-income and low-income nations (Skouteris et al., 2014). Nevertheless, it is notable that only 37% of infants under six months of age are exclusively breastfed in countries with middle or low incomes (Victora et al., 2016). latest studies conducted in the region of sub-Saharan Africa reported that exclusive breastfeeding during the first six months is practiced for only 53.5% of infants in East African

countries(Issaka, Agho, & Renzaho, 2017).significantly f falls much short of the 90% target set by the World Health Organization(Jahanpour, Msuya, Todd, Stray-Pedersen, & Mgongo, 2018). No studies have been conducted in El-Beyda Medical Center-Libya comparing the awarness, attitudes, and practice of EBF among participants attending ANC. Therefore, the purpose of current study to evaluate mother's awarness(knowledge), attitude, and practice toward EBF, in addition examined the relationship between maternal attitudes and knowledge and EBF practice. Additionally, to determine the obstacle to breastfeeding that is connected to KPA

Methodology A cross-sectional,descriptive research has been carried out at El-Beyda Medical Center to find out the prevalence of breastfeeding exclusively and to evaluate mothers' "knowledge, attitudes, and practices (KAP)". attending antenatal care services. All mothers visiting the gynecology clinics, labor room, and post-operative care unit during the data collection period were eligible. A convenience sample of 100 mothers who attended the study was selected for data collection” who fulfilled the inclusion criteria of the study and agreed to take part between 1 September and 15 December 2025 was included. A structured questionnaire modified from earlier research was used to gather data through in-person interviews (Temoirokomalani et al., 2021). The collected data were coded and entered into SPSS version 23 for analysis. All data obtained were coded and inputted into SPSS version 23 for further analysis.The data were summarized using descriptive statistics, including frequency tables, for clear presentation, while Pearson’s correlation was applied to examine relationships among KAP components. The Kruskal-Wallis test was applied to evaluate correlations between Social and demographic variables and KAP, and one-sample t-test was utilized for comparing sample mean values. Ethical approval was achieved from the Al-Mukhtar Committee for Biosafety and Bioethics (reference number NBC: 007. H. 25. 52., dated 3 Augestl 2025). Every participant was given the assurance of confidentiality and told they could leave at any time without facing any repercussions.

Results

Table (1) illustrate the Socio-demographic Information of the Mothers in the Study

Demographic factors of mother	Frequency	Percentage
Age group		
19-24	35	35%

25-30	40	40%
31-36	12	12%
37-42	13	13%
Mean (Std) $\pm$ 27.77(5.819)		
Education		
Primary	5	5%
Secondary	24	23%
Tertiary	71	70%
No of children		
first	29	29%
Second	29	29%
> 3 infants	42	42%
Occupation		
Employment	45	45%
Un employment	55	55%
Income		
Low: $\leq$ 1000	32	32%
Middle: 1000–2000	59	59%
High= $>$ 2000	9	9%

Table(2)Socio-demographic Characteristics of infants

Characteristics of infants	Frequency	Percentage
“Age of Infants (months)”		
0-1 month	24	24%
1-3 months	14	14%
3-6 months	62	62%
“Duration of Pregnancy at Birth”		
Preterm (<37 weeks)	10	10%
37-42 weeks	77	77%
Post-term (>42 weeks)	13	13%

Birth weight of newborn		
< 2.5 kg	19	19%
NBW(2.5–4.0 kg)	80	80%
> 4.0 kg	1	1%
Type of delivery		
NVD	56	56%
Caesarean Section(C/S)	44	44%

Table (1) and (2) titled Sociodemographic characteristic present and describe statistic on eight Characteristics of maternal and infants that include age group, education, no of children, occupation and monthly income. The large amount of participants (40%) in the 25-30 age group, and followed by aged 19-24 and account 35%. However, age group 37-42 and 31-36 account the smaller proportions 12% and 13% correspondingly. Where Mean (Std) $\pm 27.77(5.819)$ showing that a majority of response were in their late twenties. The almost of participants had Tertiary education and account 70%. According to number of children, approximately 42% of participants had more than children, while, mother who had first and second children were equal proportion and account 29% for each. Regarding to occupation the finding reported that, 55% were Unemployment, while 44% were employment. The majority of mother 59% revealed they had a middle income (between 1000 and 2000), 32% of participants had less than or equal 1000 and only 9% stated a high income > 2000.

According to age of infants, the vast majority of infants (62%) fall in the age group 3-6 months, comparatively small proportion of infant 24% and 14% found in 0-1 month and 1-3 months respectively. Nearly all of infants 77% were born at 37-42 weeks, which is known full term, only 10% were preterm and 13% of infant were born at >42 weeks, which is considered postdate. According to type of delivery, most infants (56%) were delivered through NVD, while 44% were delivered by cesarean section. The vast majority of infants indicating healthy weight range 2.5-4.0 and account 80%, however, 1% have weight more than 4kg, just 19% of babies are underweight. It is a recognized risk factor for newborn problems.

Table (3) illustrate assessment of Mothers' Knowledge (awareness) Regarding Breastfeeding

Knowledge Criterias	Responses	F	%	Mean	STD	P. value
	Likert scale					
Breast milk contains all the essential nutrients required for a baby	Correct	82	82%	1.28	.637	0.000
	In correct	8	8%			
	Don't know	10	10%			
Breast milk's colostrum serves as a baby's safe vaccination.	Correct	74	74%	1.42	.755	0.000
	In correct	10	10%			
	Don't know	16	16%			
Breast milk is more easily absorbed and digested than infant formula	Correct	68	67.3%	1.43	.685	0.000
	In correct	21	21.8%			
	Don't know	11	10.9%			
Breastfeeding(lactate) can be maintained for up to two years	Correct	77	77%	1.34	.670	0.000
	In correct	12	12%			
	Don't know	11	11%			
Exclusive breastfeeding is sufficient for the first six months of life	Correct	69	69%	1.47	.758	0.000
	In correct	15	15%			
	Don't know	16	16%			
Exclusive breastfeeding can adequately sustain an infant for up to six months.	Correct	74	74%	1.37	.677	0.000
	In correct	15	15%			
	Don't know	11	11%			
Breast feeding decrease diarrhea	Correct	72	72%	1.40	.696	0.000
	In correct	16	16%			
	Don't know	12	12%			
Breastfeeding protects the mother from developing breast cancer	Correct	77	77%	1.32	.615	0.000
	In correct	15	15%			
	Don't know	8	8%			
Breastfeeding is an effective natural family planning method	Correct	83	83%	1.24	.571	0.000
	In correct	10	10%			
	Don't know	7	7%			

One sample t-test and descriptive statistic

Mother breastfeeding knowledge

The majority of participants 82% know that breast milk contains all the essential nutrients required for a baby. More than half 74% recognized that Colostrum serves as a baby's safe vaccination, while 67.% of participants known that Breast milk is more easily absorbed and digested than infant formula, 69% b of mother correctly identified that can be maintained for up to two years, nearly 74% of participants known exclusive breastfeeding is sufficient for the first six months of life, approximately 72% of response know that breast feeding declines diarrhea among children, large amount of mother 77% known that breast feeding prevent breast cancer, moreover, 83% breastfeeding is a good family planning method. The P-value for all statements indicated a high level of statistical significance ($p < 0.001$). The findings suggest the level of knowledge reflect the participants' understanding.

Table(4) illustrate mothers' attitudes regarding breastfeeding

Attitude Criterias	5Liker scale calcification					Mean(Std)	P. value
	SA	A	N	DA	SD	(1.69)	0.000
	n %	n %	n %	n %	n %	± 2.37	
feeding infants formula is the best option if mother intend to return to work	25	41	9	22	3		
	24.8%	40.6%	8.9%	21.8%	3%		
Bottle feeding can be option when the baby refuses to breastfeeding	29	54	6	6	5	(1.024)	0.000
	28.7%	53.5%	5.9%	5.9%	5%	±2.04	
It is not appropriate for women to breastfeed in public areas like restaurants or markets.	34	27	8	21	10	(1.403)	0.000
	33.7%	26.7%	7.8%	%20.8	%9.9	±2.46	
Breastfeeding time-consuming	30	39	11	18	2	(1.127)	0.000
	29.7%	38.6%	10.9%	%17.8	2%	±2.23	

The advantages of breastfeeding are limited for a shorter period	7	16	6	51	20	(1.180)	0.000
	%6.9	15.8%	5.9%	50.5%	19.8%	±3.61	
I find exclusively breastfeed difficult	14	27	14	32	13	(1.298)	0.818
	14%	27%	14%	32%	13%	±3.03	
formula feeding is equally healthy as breast feeding	1	3	4	23	69	(0.795)	0.000
	%1	3%	4%	23%	69%	±4.37	

One sample t-test.

*SD refers to Strongly Disagree, D refers to Disagree, N refers to neither agree nor disagree, A refers to agree and SA refers to strongly agree.

Mother's Breastfeeding Attitude

Attitudes of participants toward breast feeding in this study are displayed in the table (4) 24.8% and 40% of participants strongly agreed and agreed that feeding infants formula is the best option if mother intend to return to work. On the other hand, 8.8%, 21.8% and 3% of study sample were either neither or disagree or strongly disagree with statement with mean and $SD \pm 2.37$ (1.69). The majority of mother 53.5% and 28.7% of mothers agreed and strongly agreed that if the baby refuses to breastfeed, bottle feeding is an option $SD \pm 2.04$ (1.024). Regarding to statement it is not appropriate for women to breastfeed in public areas like restaurants or markets., approximately 33.7% and 26.7% were agreed and strongly agreed respectively, which 20.8% were disagreed with statement and mean and $SD \pm 2.46$ (1.403). About 38.6%, 29.7% of participants agreed and strongly agreed that breast feeding taking a time with mean and $SD \pm 2.23$ (1.127). About 50.5% disagreed 19.8% strongly disagreed 15.5% agreed the The advantages of breastfeeding are limited for a shorter period with mean $SD \pm 3.6$ (1.180). The table demonstrated that 32% of respondents disagreed, 27% agreed with statement they found difficult to exclusively breastfeed with mean $SD \pm 3.03$ (1.298). About 69% of mother strongly disagreed that formula feeding is equally healthy as breast feeding with mean $SD \pm 4.37$ (0.795). P-value for almost of statements = 0.000 indicating strongly statistically significant.

Table(5) Mothers breast feeding practice

Statements	Options	F	%	Mean	STD	P. value
	Likert scale					
Colostrum was given to my baby	Yes	85	84.2%	1.17	.428	0.000
	No	13	12.9%			
	Uncertain	2	2%			
Breastfeeding was initiated within one hour of birth.	Yes	44	43.6%	1.58	.535	0.000
	No	54	53.5%			
	Uncertain	2	2%			
Breast milk was the baby's first feeding.	Yes	51	51%	1.51	.541	0.000
	No	47	46.5%			
	Uncertain	2	2%			
The baby was given other milk apart from breast milk at home	Yes	62	61.5%	1.40	.532	0.000
	No	36	36%			
	Uncertain	2	2%			
The baby started eating solid foods at 4 months old.	Yes	22	21.8%	1.87	.544	0.019
	No	68	68.3%			
	Uncertain	9	8.9%			
The baby received other foods in addition to breast milk	Yes	48	47.5	1.60	.636	0.000
	No	44	43.6%			
	Uncertain	8	7.9%			
Are you still breastfeeding your child	Yes	69	68.3%	1.32	.490	0.000
	No	30	29.7			
	Uncertain	1	1%			

The table (5) illustrates data on numerous statements related to mothers' breastfeeding practices, along with their responses, means, standard deviations (STD), and p-values. The high percentage (84%) of participants

Colostrum: A high percentage (84%) of mothers reported that they were given their babies colostrum. The mean of 4.21 suggests strong agreement, with a low standard deviation (0.428), indicating consistency in responses. The study found merely (43.6%) of respondents were initiated within one hour of birth., more than half (53.5%) did not initiate breastfeeding within this duration, and only (2%) were uncertain regarding initiation timing, suggest a high level of awareness among participants regarding practices of their breastfeeding. The mean score of 1.58 revealed that, on average, responses tendency to towards "No," indicating that almost participants did not initiate breastfeeding within the recommended time. A statistically significant difference between participants is indicated by the p-value of 0.000. According to first feeding with breast milk statement, (51%) of participants reported that fed their babies breast milk first, (46.5%) were not breast milk, while (2%) were uncertain, with mean score regarding this statement is 1.51, and having a p-value of 0.000, establishing that a statistically significant preference for breast milk as the initial feeding choice. Regarding feeding from birth to discharge finding found that (57.5%) were fed their babies breast milk, while (37%) do not and only (5%) of participants were uncertain. The mean score of 1.47 and a p-value of 0.000 indicate a significant inclination towards breastfeeding during this period. According to other milk consumption, the majority of participants (61.5%) reported that their baby received other foods in addition to breast milk at home, while (36%) of do not given other milk, only (2%) uncertain, with mean score 1.40, according to p-value of 0.000 a highly statistically significant relationship was observed in the statement of the study, indicating that the practice of giving other milk is a notable factor worth further exploration. The study reported that (21.8%) of respondents introduced solid food for their babies at 4 months, while more than a half (68.3%) do not give solid (8.9%) were uncertain about whether solid food was introduced. This uncertainty may point to a lack of clarity or awareness regarding feeding practices among some parents. food, while. The P-value (0.019) for solid food was statically significant. Approximately (47.5%) of babies were given other food apart from breast milk, while (43.6%) were not and small proportion (7.9%) were uncertain with mean 1.60 and SD .636, and P-value was 0.000 that indicates statically significant.

According wither the mothers are still breast feeding their babies, a significant majority (68.3%) of participants are still breastfeeding their child, indicating very strong commitment to breastfeeding practices. The number of respondents who are not breastfeeding (29.7%) is also notable, while only 1% are uncertain, with mean value of 1.32 suggests that the responses lean towards the affirmative(breast feeding), with values likely coded for analysis (e.g., 1 for "Yes," 2

for "No," and 3 for "Uncertain"), while the 0.490 standard deviation suggests that there is not much variance among the responses, showed that most respondents and a p-value of 0.000 is highly significant, indicating that the results are statistically robust. This suggests that there is a strong relationship or effect regarding the breastfeeding status of the respondents.

Table (6) illustrate overall mean score of KPA(knowledge, attitude and practice)

KAP	Mean	SD
knowledge	12.2600	5.3345
attitude	21.4700	2.9489
practice	11.9200	1.9367

The table displayed the overall means and standard deviations for "Knowledge, Attitude, and Practice (KAP)" in this research. The findings found the mean and stander deviation score of knowledge are 12.26 and 5.33, that suggest a moderate level of knowledge among women, conversely, the average mean score of attitude is 21.47 with a standard deviation of attitude 2.95. This indicates a relatively high positive attitude towards the subject matter, with less variability compared to knowledge. In comparison the score mean of attitude (11.92) and standard deviation of 1.94, suggests a lower level of practice to both attitude and knowledge with responses showing less variability. In general, the findings show that while participants exhibit a positive attitude, their knowledge and practice levels are comparatively lower.

Table (7) Level of knowledge

items	Score
Poor knowledge	0-9
Moderate knowledge	10-19
Good knowledge	20-29

The table (7) illustrate effectively delineates levels of knowledge by using clear score ranges, making it easy for assessors to classify individuals based on their performance, where table classified to 3 levels, **poor knowledge** category includes scores ranging from 0 - 9, **moderate knowledge** scores ranging from 10-19, and **good knowledge** scoring from 20-29.

Table (8) Level of attitude

items	Score
Very poor attitude	0-6
Poor attitude	7-13
Moderate attitude	14-21
Good attitude	22-29
Very good attitude	30-37

The table (8) clarify the score of attitude which include 5 categories, **very poor attitude** category include scores from 0-6 reflecting to significantly negative, **poor attitude** category, which include scores ranging 7-13, indicating a generally negative attitude ,**moderate attitude** category, scores from 14 to 21reflecting a neutral the subject, **good Attitude category**, Scores ranging from 22 to 29 suggest indicate a positive and constructive attitude, **very good attitude** category, indicates to highest category, with scores from 30 to 37, denotes an exceptionally positive and proactive attitude.

Table (9) Level of practice

items	Score
Poor practice	0-7
Moderate practice	8-16
Good practice	17-25

The table (9) provides the practice of participants, that involve 3 categories,**poor practice** category includes scores from 0 - 7, suggest a lack of effectiveness in practice, **moderate practice** category include scores between 8 to 16 reflecting a fair level of practice, with some areas needing improvement, **good practice** includes cores ranging from 17 to 25 reflect a high level of effectiveness in practice.

Table 10: Correlation between KAP

Variable	r	P.value
Knowledge vs. Attitude	0.151	0.133
Knowledge vs. Practice	-.063	0.530
Attitude vs. Practice	.072	0.474

Colleration pearson (Bivarite)

Pearson correlation coefficients (r) and p-values for KAP are displayed in table (10). The study found that Knowledge vs. Attitude, the correlation coefficient is 0.151 with a p-value of 0.133, demonstrating a very weak positive correlation and non-statistically significant. Moreover, knowledge vs. attitude correlation coefficient also is 0.151 with a p-value of 0.133, indicating very weak positive correlation that once more not statistically significance. In addition, attitude vs. practice the coefficient is 0.072 with a p-value of 0.474, indicating a slight positive correlation that is again not significant in statistical terms

. In general, none of the relationships show significant correlations, implying that changes in one variable do not strongly predict changes in another within this dataset.

Table(11)Correlation between socio-demographic characteristics and KAP

Socio-demographic	knowledge		Attitude		practice	
characteristic	Mean Rank	P- value	mean Rank	P-value	mean Rank	P-value
Age group						
19-24	46.81	0.392	49.67	0.907	49.50	0.504
25-30	49.35		49.04		54.95	
31-36	56.17		52.63		41.33	
37-42	58.73		55.27		47.96	
Age of infant						
0-1	37.77	0.011	53.02	0.318	47.04	0.066
1-3	58.39		59.64		67.00	
3-6	53.65		47.46		48.11	
No of children						
First	54.07	0.678	58.29	0.218	54.07	0.328
Second	54.21		46.34		54.21	
> 3 infants	45.48		47.99		45.48	
Income						
Gestational age at birth						
Preterm (< 37 weeks)	42.65	0.016	39.40	0.398	52.50	0.264
At full term(37-42) weeks	48.54		52.28		52.28	

Post-term (> 42 weeks)	68.15		48.50		38.42	
Type of delivery						
Vaginal birth	53.37	0.186	48.66	0.471	42.21	0.001*
Cesarean section(C/S)	46.85		52.84		61.05	

Kruskal-Wallis Test

The table (11) presents correlation analysis between different socio-demographic characteristics and levels of knowledge, attitudes and practices (KAP). Our results found that Younger participants (19-24 years) have the highest mean rank in knowledge (46.81) and practice (49.70), suggesting that younger individuals may have better knowledge and more active practices. According to number of children the mean rank decreases as the number of infants increases, particularly in the knowledge and practice categories. This may indicate that having more infants could be associated with lower levels of knowledge and practice. While gestational age at birth, results suggest that births occurring after 37 weeks yield higher mean ranks in both knowledge and practice, indicating a potential link between gestational age and KAP. However, type of delivery the result found that normal deliveries show higher mean ranks in both knowledge and practice, which may reflect better education or awareness among those opting for normal delivery. The p-values reflect the statistically significance of these correlations, with lower measurement values (typically <0.05) suggesting a stronger relationship. Overall, the findings highlight that socio-demographic factors significantly influence knowledge, attitudes, and practices regarding the studied topic.

Discussion

Because of its unique makeup, which includes growth hormones, metabolites, microbes, and multipotent stem cells, human breast milk is regarded as the best source of nutrition for infants worldwide. Therefore, breastfeeding has definite short-term advantages for neonates as well as long-term consequences during teenage years through molecular mechanisms. (Victora et al., 2016). According to socio-demographic characteristic presented in research finding shows that the vast majority of mother are within the age group between 25-30 which almost formed 40%. A similar pattern was observed in studies such as the "Mamma & Bambino" cohort in Italy, where maternal age was generally concentrated around a median of 37 years, slightly older than in your

study. Older maternal age in other studies is often associated with higher conformity to breastfeeding recommendations and guideline (Magnano San Lio et al., 2021). The current study found that 70% of participants had tertiary education, which aligns with findings from studies showing a strong correlation between higher education and breastfeeding practices. For instance, the "Mamma & Bambino" study highlighted that mothers with medium or high education levels were more likely to exclusively breastfeed during the first six months of life ($p = 0.007$) (Magnano San Lio et al., 2021). However, other researches in low-income settings report that lower education levels as a hindrance to initiation and maintenance of breastfeeding (Boone, Dynia, Logan, & Purtell, 2019). In our study, mothers with more than three children the largest group (42%). Research found that mothers with multiple children are often more experienced and may exhibit better breastfeeding practices. However, fatigue and resource constraints in large families can sometimes reduce breastfeeding adherence (Boone et al., 2019; Magnano San Lio et al., 2021). Our data shows 44% of mothers were employed. Studies like the one from the American Academy of Pediatrics highlight that employment status, particularly full-time employment, can both positively and negatively affect breastfeeding. Access to maternity leave and workplace support are critical in determining whether employed mothers continue breastfeeding (Boone et al., 2019). Regarding income, our findings categorize income into low, middle, and high, with most mothers in the middle-income group (59%). In contrast, studies in lower-income populations often reveal that financial constraints act as barriers to breastfeeding, emphasizing the role of socioeconomic support in promoting breastfeeding (Boone et al., 2019).

According to gestational age at birth, the current study found that preterm births (< 37 weeks) accounted for 10% of infants, 77% at term (37–42 weeks), and 13% post-term (>42 weeks). This aligns with global data suggesting that preterm births are a significant concern, especially in low-resource settings. For example, a study in South Africa found a prevalence of preterm births at 13%, primarily linked to maternal health conditions like hypertension and infections during pregnancy (Jeena, Asharam, Mitku, Naidoo, & Naidoo, 2020). However, in some areas of sub-Saharan Africa, preterm birth rates are even higher due to disparities in healthcare access (Ahenkorah et al., 2022).

The results of the present study showed that 19% of infants had low birth weight (LBW, <2.5 kg). This result is consistent with other studies, in Ghana established that LBW rates around 16–19% in different regions

LBW is frequently associated with preterm birth and some of maternal factors such as anemia, malnutrition, and hypertension disorders during Gestational period (Ahenkorah et al., 2022; Jeena et al., 2020). In present study, 56% of birth were vaginal delivery, 44% were cesarean sections, In your study, 56% of births were vaginal, and 44% were cesarean sections. This is comparatively high in contrast to the World Health Organization's recommendation of a cesarean section rate of 10–15% for medical necessity. This similar Studies from South Africa and Ghana also report increasing cesarean rates, often due to higher rates of preterm labor, maternal complications, or hospital policies(Jeena et al., 2020).

Mother Knowledge of breast feeding, regarding to finding in the current study, 82% of participants correctly identified breast milk contains all necessary nutrition that baby need, this agreement with another study, reported that 98.9% of mothers generally high knowledge regarding breastfeeding benefits(Temoirokomalani, Singh, & Khan, 2021). This agreement indicating that foundational breastfeeding knowledge is widespread globally due to public health campaigns and educational efforts(Temoirokomalani et al., 2021). Regarding to the role of breast feeding in disease prevention, the findings found that 74% were correctly acknowledged that colostrum acts as a "safe vaccine," reflecting global research consensus. This consist with studies in Suva, fiji highlight the immunological importance of breast colostrum milk and its perceived value to mothers(Temoirokomalani et al., 2021).Breastfeeding as a contraceptive method, 73% of participants correctly breastfeeding is good family planning, only 7% of mothers recognized breastfeeding's role in family planning, which parallels findings in studies where cultural and educational gaps led to limited understanding of breastfeeding's role in natural contraception (e.g., locational amenorrhea method). study by Abie and Goshu (2019) in Ethiopia similarly highlighted a lack of awareness in this area(Abie & Goshu, 2019). More than half of participants women responded correctly to statement of breast feeding knowledge that includebreast milk is more easily absorbed and digested than infant formula and first food for baby; 77% of participants women understanding breast milk can continue for up 2 years; breastfeeding(lactate) can be maintained for up to two years.This agreement with finding in studies from other country, where knowledge regarding breast feeding is high (Temoirokomalani et al., 2021). Mother awareness regarding breast feeding role to prevent cancer risk, about 77% were correct, however 15% un correct, and 8 uncertain. The similar result has been found, where 76.6% of participants awareness breast feeding paly important role to prevent breast cancer(Temoirokomalani et al., 2021).Even though generally breast feeding was beneficial and good, there were several significant gap in this study about the

necessity for breast milk alone throughout the first six months of life, 15%, 16% were uncorrected and uncertain, signified in adequate knowledge and the World Health Organization advises and recommended that breastfeeding should continue until the age of 2 years. The overall mean score knowledge 12.2 ± 5.33 showed that participants mother had moderate knowledge. Un similar findings conducted by Ukegbu reported that the mother had good knowledge and have high rate of exclusive breast feeding (Ukegbu, Ukegbu, Onyeonoro, & Ubajaka, 2011). Increased education will enhance mothers' understanding of breastfeeding, helping them recognize its benefits and the health risks linked to inadequate breastfeeding practices (Duong, Binns, & Lee, 2004).

Mothers attitude regarding breast feeding

The finding reveal varied attitude toward breast feeding, the majority of respondents agreed that feeding infants formula is the best option if mother intend to return to work (mean = 2.37, p-value 0.000). This aligns with studies suggesting that workplace policies and lack of breastfeeding accommodations often push mothers toward formula feeding (Rollins et al., 2016). Supportive workplace environments are critical in promoting continued breastfeeding among working mothers (Rollins et al., 2016). **The acceptance of bottle feeding** as an alternative when a baby refuses to breastfeed was also evident (mean = 2.04, $p < 0.001$). similar finding was reported that 54.6% of mother agreed that feeding infants formula is the best option if mother intend to return to work (Temoirokomalani et al., 2021). Literature highlights that bottle feeding is often viewed as a practical option in such situations, even though exclusively breastfeeding is strongly advised within the initial six months of life (Victora et al., 2016). interestingly, even though 60.4% with (mean = 2.46, $p < 0.001$) of women should not breast feeding in public was strongly supported (mean = 2.46, $p < 0.001$), suggesting persistent societal stigma. Similar finding in another study has reported that, the perception of breastfeeding in public is frequently viewed as unacceptable, largely and often perceived negatively due to cultural taboos influences and lack of awareness (Temoirokomalani et al., 2021). The study performed by Ogbauja confirmed this conclusion, namely that cultural acceptance of breastfeeding can increase its practice if the necessary support is provided by family, community, and others to overcome obstacles (Ugboaja, , Anthony O Igwegbe, & Obi-Nwosu, 2013).

The perception that breastfeeding is time-consuming (mean = 2.23, $p < 0.001$) is consistent with other research indicating that the time commitment required for breastfeeding can be a barrier, especially for mothers juggling multiple responsibilities (Johnston & Esposito, 2007) Addressing

these challenges through time management strategies and spousal or family support is essential(Johnston & Esposito, 2007).The attitude that formula feeding is as healthy as breastfeeding (mean = 2.43, $p < 0.001$) reflects misinformation or limited awareness of the health benefits of breastfeeding. Evidence suggests that breastfeeding provides unmatched immunological and nutritional benefits for infants, which formula cannot replicate(Victora et al., 2016).Notably, the statement about the difficulty of exclusively breastfeeding (mean = 3.03, $p = 0.818$) indicates mixed opinions, with no statistically significant result. This neutrality could suggest that mothers' experiences with exclusive breastfeeding vary widely depending on factors such as support systems, education, and personal resolve(Victora et al., 2016). It is important to provide childcare facilities for working mothers in the workplace to support and promote exclusive breastfeeding during the first six months of a child's life. (Temoirokomalani et al., 2021).

Maternal practices related to breastfeeding

Generally, this research provides findings mothers' practice towards breastfeeding and there were good. findings showed that 84.2% of mothers provided colostrum, and 43.6% breastfeeding was initiated within the first hour after birth. "Early initiation of breastfeeding (EIBF)" is crucial and vital for decreasing neonatal mortality and improving infant health. This is consistent with research indicating the importance of colostrum for newborn health, as it is rich in antibodies and essential nutrients(Zwicker, Missiuna, Harris, & Boyd, 2010). Breastfeeding should begin within the first hour of life, according to the WHO to reduce the risk of infections and promote optimal nutrient intake Early skin-to-skin contact was established between the mother and the newborn after birth can facilitate breastfeeding and strengthen their bond(WHO & Unicef, 2020).

This study recorded the practices of exclusive breast feeding for the first feeding provided to the newborn was breast milkwhich is quite low 51% in compare with their awareness in exclusive breastfeeding. This consist with another study which reported that 55,8% practice of exclusive breast feeding was breast milk(Temoirokomalani et al., 2021). approximately (61.5%) of infants received other than breast milk at home. According to a similar finding, 69.6% of newborns received milk other than breast milk at home.(Temoirokomalani et al., 2021). At hospital discharge, the exclusive breastfeeding rate fell to over 50%. Breastfeeding can be challenging to mothers, just like any other activity, particularly among young and inexperienced women(Smith, 2018). According to this study, 47% of mothers choose milk other than breast milk because they have access to and can afford the necessary supplies. Another factor linked to breastfeeding practices in

this study was mothers' work level. Significantly, women who were unemployed including those who were still in school reported better breastfeeding behaviors than mothers who were employed.(Temoirokomalani et al., 2021). Comparably, the study in Jordan revealed that complete breastfeeding was less common among employed mothers than among jobless women.(Khassawneh, Khader, Amarin, & Alkafajei, 2006). The findings of present research, found that nearly all mothers (68.3%) did not introduce solid meals for their infants at four months, while only 21.8% reported doing so. The most recent recommendations, which state that a baby should only be breastfed for the first six months of life. (WHO, 2021) .Introducing solid foods too early can raise a baby's risk of allergies and gastrointestinal illnesses.(Sansotta et al., 2013).

Correlation of socio-demographic characteristics with (KAP)

The findings in the context of the present study provides correlation between age group and KAP, which indicate that the P-values (knowledge: 0.392, attitude: 0.907, and practice: 0.504) indicate no significant differences in KAP across age groups. However, multiple studies emphasize the importance of maternal age in influencing knowledge and attitudes. For instance, research carried out in Ethiopia revealed that found that younger mothers, especially those in their twenties, had better KAP scores due to higher education levels and openness to adopting modern healthcare practices(Mogre, Dery, & Gaa, 2016). While the result indicates that the P-value for knowledge (0.011) suggests a significant relationship, particularly with mothers of 3–6-month-old infants scoring higher. This finding aligns with a study on exclusive breastfeeding (EBF) practices among Ghanaian mothers, which demonstrated that knowledge increases with child age as mothers gather more experience and healthcare exposure. However, gaps in EBF knowledge persist due to cultural and educational barriers(Janakiraman, Gebreyesus, Yihunie, & Genet, 2021; Mogre et al., 2016). On the other, the result presented that no statistically significant associations are evident ($P > 0.05$ for all domains with number of children). In contrast, studies on breastfeeding practices suggest that multiparous mothers often have improved knowledge and practices due to prior experience(Janakiraman et al., 2021). The study reported that there is a significant relationship exists for knowledge $P = 0.016$), with mothers of babies born after 37 weeks scoring higher. In comparable to findings in an Ethiopian study on antenatal exercise This study noted higher knowledge levels in mothers with full-term pregnancies, likely due to increased antenatal visits and counseling opportunities(Mogre et al., 2016). The findings suggest that the P-value for practice (0.001) indicates a significant difference, with cesarean delivery associated with better practice

scores. May reflect greater exposure to postnatal care instructions. A similar study on breastfeeding practices found that healthcare interventions post-cesarean often emphasize structured caregiving, contributing to better adherence to recommended practices (Janakiraman et al., 2021).

Conclusion This study underscores the multifaceted factors influencing breastfeeding knowledge, attitudes, and practices (KAP) among mothers, revealing critical insights and areas for intervention. The findings emphasize that maternal socioeconomic variables including age, income, employment situation, and degree of education significantly impact breastfeeding practices and adherence to WHO guidelines. Additionally, variables such as delivery type and gestational age were found to influence breastfeeding outcomes, with cesarean delivery linked to better postnatal practices due to enhanced exposure to healthcare guidance. While the study demonstrates high levels of awareness about breastfeeding benefits, gaps persist in exclusive breastfeeding practices and misconceptions surrounding breastfeeding's role in family planning and long-term health benefits. Notably, societal and workplace barriers, including stigmas around breastfeeding in public and inadequate maternity support, continue to hinder optimal breastfeeding practices.

The significant correlation between higher maternal education and improved breastfeeding outcomes highlights the need for targeted educational programs. Similarly, enhancing workplace policies, providing crèche facilities, and promoting breastfeeding-friendly environments can empower employed mothers to sustain breastfeeding. Ultimately, this study reaffirms breastfeeding's critical role in promoting infant health and development. By addressing socio-cultural and systemic barriers, public health initiatives can better support mothers in achieving optimal breastfeeding practices, contributing to achieve improved health outcomes for mothers and their offspring.

References

- Abie, Bereket Molla, & Goshu, Yitayal Ayalew. (2019). Early initiation of breastfeeding and colostrum feeding among mothers of children aged less than 24 months in Debre Tabor, northwest Ethiopia: a cross-sectional study. *BMC research notes*, 12, 1-6.
- Ahenkorah, Benjamin, Sakyi, Samuel Asamoah, Helegbe, Gideon, Owiredo, Eddie-Williams, Fondjo, Linda Ahenkorah, Ofosu, Winfred, . . . Cheetham, Susanna. (2022). Foeto-maternal complications associated with low birth weight: A prospective multicenter study in northern Ghana. *Plos one*, 17(4), e0266796.

- Black, Robert E, Morris, Saul S, & Bryce, Jennifer. (2003). Where and why are 10 million children dying every year? *The lancet*, 361(9376), 2226-2234.
- Boone, Kelly M, Dynia, Jaclyn M, Logan, Jessica, & Purtell, Kelly. (2019). Socioeconomic Determinants of Breastfeeding Initiation and Continuation for Families Living in Poverty: American Academy of Pediatrics Elk Grove Village, IL, USA.
- Buckland, Christa, Hector, Debra, Kolt, Gregory S, Fahey, Paul, & Arora, Amit. (2020). Interventions to promote exclusive breastfeeding among young mothers: a systematic review and meta-analysis. *International breastfeeding journal*, 15(1), 102.
- Cope, Mark Bradley, & Allison, David B. (2008). Critical review of the World Health Organization's (WHO) 2007 report on 'evidence of the long-term effects of breastfeeding: systematic reviews and meta-analysis' with respect to obesity. *Obesity reviews*, 9(6), 594-605.
- Duong, Dat V, Binns, Colin W, & Lee, Andy H. (2004). Breast-feeding initiation and exclusive breast-feeding in rural Vietnam. *Public Health Nutrition*, 7(6), 795-799.
- Holtzman, Orit, & Usherwood, Tim. (2018). Australian general practitioners' knowledge, attitudes and practices towards breastfeeding. *PloS one*, 13(2), e0191854.
- Hossain, Murad, Islam, Ashraful, Kamarul, Tunku, & Hossain, Golam. (2018). Exclusive breastfeeding practice during first six months of an infant's life in Bangladesh: a country based cross-sectional study. *BMC pediatrics*, 18, 1-9.
- Idris, Shadia Mohamed, Tafeng, Amin Gordiano Okwahi, & Elgorashi, Arafa. (2015). Factors influencing exclusive breastfeeding among mother with infant age 0-6 months. *Int J Sci Res*, 4(8), 28-33.
- Issaka, Abukari Ibrahim, Agho, Kingsley Emwinyore, & Renzaho, Andre MN. (2017). Prevalence of key breastfeeding indicators in 29 sub-Saharan African countries: a meta-analysis of demographic and health surveys (2010–2015). *BMJ open*, 7(10), e014145.
- Jahanpour, Ola, Msuya, Sia E, Todd, Jim, Stray-Pedersen, Babill, & Mgongo, Melina. (2018). Increasing trend of exclusive breastfeeding over 12 years period (2002–2014) among women in Moshi, Tanzania. *BMC pregnancy and childbirth*, 18, 1-8.
- James, DC, & Lessen, Rachelle. (2009). Position of the American Dietetic Association: promoting and supporting breastfeeding. *Journal of the American Dietetic Association*, 109(11), 1926-1942.

- Janakiraman, Balamurugan, Gebreyesus, Tsiwaye, Yihunie, Muluaalem, & Genet, Moges Gashaw. (2021). Knowledge, attitude, and practice of antenatal exercises among pregnant women in Ethiopia: A cross-sectional study. *PloS one*, 16(2), e0247533.
- Jeena, Prakash M, Asharam, Kareshma, Mitku, Aweke A, Naidoo, Pragalathan, & Naidoo, Rajen N. (2020). Maternal demographic and antenatal factors, low birth weight and preterm birth: findings from the mother and child in the environment (MACE) birth cohort, Durban, South Africa. *BMC pregnancy and childbirth*, 20, 1-11.
- Johnston, Marina L, & Esposito, Noreen. (2007). Barriers and facilitators for breastfeeding among working women in the United States. *Obstet Gynecol Neonatal Nurs*, 36(1), 9-20. doi: 10.1111/j.1552-6909.2006.00109
- Khassawneh, Mohammad, Khader, Yousef, Amarin, Zouhair, & Alkafajei, Ahmad. (2006). Knowledge, attitude and practice of breastfeeding in the north of Jordan: a cross-sectional study. *International breastfeeding journal*, 1, 1-6.
- Magnano San Lio, Roberta, Maugeri, Andrea, La Rosa, Maria Clara, Cianci, Antonio, Panella, Marco, Giunta, Giuliana, . . . Barchitta, Martina. (2021). The impact of socio-demographic factors on breastfeeding: Findings from the “Mamma & Bambino” cohort. *Medicina*, 57(2), 103.
- Mogre, Victor, Dery, Michael, & Gaa, Patience K. (2016). Knowledge, attitudes and determinants of exclusive breastfeeding practice among Ghanaian rural lactating mothers. *International breastfeeding journal*, 11, 1-8.
- Ogbo, Felix Akpojene, Nguyen, Hillary, Naz, Sabrina, Agho, Kingsley E, & Page, Andrew. (2018). The association between infant and young child feeding practices and diarrhoea in Tanzanian children. *Tropical medicine and health*, 46, 1-9.
- Organization, World Health, & Unicef. (2014). *Global nutrition targets 2025: breastfeeding policy brief*: WHO.
- Rollins, Nigel C, Bhandari, Nita, Hajeerbhoy, Nemat, Horton, Susan, Lutter, Chessa K, Martines, Jose C, . . . Victora, Cesar G. (2016). Why invest, and what it will take to improve breastfeeding practices? *The lancet*, 387(10017), 491-504.
- Saadeh, R, & Benbouzid, D. (1990). Breast-feeding and child-spacing: importance of information collection for public health policy. *Bulletin of the World Health Organization*, 68(5), 625.

- Sansotta, Naire, Piacentini, GL, Mazzei, Federica, Minniti, Federica, Boner, AL, & Peroni, DG. (2013). Timing of introduction of solid food and risk of allergic disease development: understanding the evidence. *Allergologia et immunopathologia*, 41(5), 337-345.
- Sinshaw, Yeshamble, Ketema, Kassahun, & Tesfa, Mulugeta. (2015). Exclusive breast feeding practice and associated factors among mothers in Debre Markos town and Gozamen district, east Gojjam zone, north west Ethiopia. *J Food Nutr Sci*, 3(5), 174-179.
- Skouteris, Helen, Nagle, Cate, Fowler, Michelle, Kent, Bridie, Sahota, Pinki, & Morris, Heather. (2014). Interventions designed to promote exclusive breastfeeding in high-income countries: a systematic review. *Breastfeeding Medicine*, 9(3), 113-127.
- Smith, Paige Hall. (2018). Social justice at the core of breastfeeding protection, promotion and support: a conceptualization. *Journal of Human Lactation*, 34(2), 220-225.
- Temoirokomalani, Maca D, Singh, Pragya, & Khan, Sabiha. (2021). Knowledge, attitude and practices of breastfeeding among mothers of children under 6 months of age in suva, Fiji. *Current Research in Nutrition and Food Science*, 9(3), 1000.
- Ugboaja, Joseph O, , Nwosu O Berthrand, Anthony O Igwegbe, & Obi-Nwosu, Amaka L. (2013). Barriers to postnatal care and exclusive breastfeeding among urbanwomen in southeastern Nigeria. *Nigerian Medical Journal* 54(1), 45-50. doi: <https://doi.org/10.4103/0300-1652.108895>
- Ukegbu, AU, Ukegbu, PO, Onyeonoro, UU, & Ubajaka, CF. (2011). Determinants of breastfeeding patterns among mothers in Anambra State, Nigeria. *South African Journal of Child Health*, 5(4), 112-116.
- Victora, Cesar G, Bahl, Rajiv, Barros, Aluísio JD, França, Giovanny VA, Horton, Susan, Krasevec, Julia, . . . Rollins, Nigel C. (2016). Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. *The lancet*, 387(10017), 475-490.
- Victora, Cesar G, Horta, Bernardo Lessa, De Mola, Christian Loret, Quevedo, Luciana, Pinheiro, Ricardo Tavares, Gigante, Denise P, . . . Barros, Fernando C. (2015). Association between breastfeeding and intelligence, educational attainment, and income at 30 years of age: a prospective birth cohort study from Brazil. *The lancet global health*, 3(4), e199-e205.
- WHO. (2021). Breastfeeding. (Vol. Dec. 2024): World Health Organization.
- WHO, & Unicef. (2020). *Protecting, promoting and supporting breastfeeding: the Baby-friendly Hospital Initiative for small, sick and preterm newborns*: World Health Organization.

WHO, World Health Organization. (2010). *Indicators for assessing infant and young child feeding practices part 3: country profiles*: World Health Organization.

Zwicker, Jill G, Missiuna, Cheryl, Harris, Susan R, & Boyd, Lara A. (2010). Brain activation of children with developmental coordination disorder is different than peers. *Pediatrics*, 126(3), e678-e686.



دولة ليبيا

Libyan Authority for Scientific Research
Libyan National Committee for Biosafety and Bioethics
Al-Mukhtar Bioethics Committee



دولة ليبيا

الهيئة الليبية للبحث العلمي
اللجنة الوطنية للأخلاقيات الحيوية والأخلاقيات البيولوجية
لجنة المختار للأخلاقيات البيولوجية
الرقم الإشاري:
التاريخ: 2025/08/03م

ETHICAL APPROVAL LETTER

Title of the research protocol: Knowledge, Attitude, and Practice of Exclusive Breastfeeding among Mothers at El-Beyda Medical Center, Libya

Applicant : Faiza A Muhammad Taher

Al-Mukhtar committee for Bio-safety and Bioethics (MCBB) has reviewed and discussed your application to conduct the above mentioned research in Midwifery and neonatal department, the Higher Institute of Medical Sciences and Technologies – Al Bayda

The following submitted documents have been received, reviewed and approved by the Al-Mukhtar committee chairman, and was given this reference number: NBC: 007. H. 25. 52.

No	Documents	
1.	Cover letter	✓
2.	Ethical approval application form	✓
3.	Research protocol and informed consent form	✓
4.	Principal investigator/supervisor's CV	✓

The approved research protocol, to be conducted in the presented form and we confirm that neither the investigator or the supervisor, nor the co-investigator(s), participating in this research project where involved in voting and decision making.

The MCBB, expect to be informed about:

1. The progress of the research project.
2. Any modifications occurring in the research protocol.

The MCBB is working accordance to its own guidelines and international applicable guidelines.

Yours Sincerely,

Ibrahim S. Milad
Chairman of the MCBB

م نسخة إلى: الملف النوري العام

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