

# Knowledge, Attitude, Motivation and Planning of Breastfeeding; A cross Sectional Study among Jordanian Women.

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## Research

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# Abstract

**Background** Antenatal women's attitude and planning for breastfeeding are affected by their awareness and the support they receive. These are key factors that contribute to the trend variation in breastfeeding practice. This study aims to assess knowledge, attitude, support, and planning of breastfeeding among Jordanian women.

**Methods** A face-to-face cross sectional semi-structured questionnaire survey was conducted among healthy women in the antenatal clinic and postpartum ward at three hospitals in Northern Jordan during the period August 2019 to December 2019. Data was collected about demographics, knowledge and attitude, support and counseling, and feeding planning. Factors associated with planning to breastfeed were reported.

**Results** 660 women completed the survey questionnaires. 78% were knowledgeable about breastfeeding benefits and aware of WHO recommendations. 72% had a positive attitude towards breastfeeding. More than half received support from their husbands to breastfeed their infants, while less than 20% received any counseling from their obstetric physicians. 97% reported their intention to breastfeed, and more than half indicated their willing to exclusively breastfeed. With Multilogistic regression model, predictors of EBF planning include primiparty (AOR 1.79 95% C.I 1.1, 3.25), positive attitude (AOR 1.80 95% C.I 1.05, 3.1) and positive husband's support (AOR 1.92 95% C.I. 1.18, 3.15). Barriers include women's employment (AOR 0.43 95% C.I. 0.26, 0.70) and low birth weight (AOR 0.46 95% C.I. 0.25, 0.84)

**Conclusion** Jordanian women are highly knowledgeable about breastfeeding benefits, and they exhibit a positive attitude towards breastfeeding resulting in a very high percentage intending to breastfeed their infants. Limited counseling about breastfeeding by obstetric physicians is a major gap in antenatal care. Assigning a specific time allotment for antenatal or postnatal counseling and support is expected to promote breastfeeding practice in our population.

## Background

The rate of exclusive breastfeeding (EBF) continues to decline in most countries despite the ongoing recommendation by the world health organization (WHO) and other international organizations to promote EBF practice for at least 6 months [1, 2]. Improving breastfeeding (BF) practice is considered an important global priority that has been included among the Millennium Development Goals established by the WHO in the past decade [1].

One of the main challenges in promoting EBF practice is related to maintaining breastfeeding for the recommended period, rather than its initiation after birth[3]. Among the reasons for low EBF rate is the limited knowledge women have about breastfeeding benefits, in addition to the limited support and encouragement they receive from their relatives or treating obstetricians [4, 5]. Also, the improvement in social and financial status had paradoxically contributed to the decline in the rate of EBF in certain cultures[6].

Women's intention to breastfeed their infants is considered among the main predictors of EBF [7], and so exploration of the factors influencing their intention might help healthcare providers to address this issue during the antenatal care visits or after delivery in order to keep mothers motivated about breastfeeding.

Among the Ten Steps to Successful Breastfeeding initiative is step 3 which talks about the importance of informing all pregnant women about the benefits and management of breastfeeding [8]. Accordingly, several studies have endorsed the importance of including a short session to review breastfeeding benefits during antenatal care visits in improving the breastfeeding rates among pregnant and newly delivered women. Mattar et al. have reported that a single session on breastfeeding education and counseling during the antenatal care visits might improve the BF practice for 3 months after birth [9]. Other reports highlighted that antenatal breastfeeding educational programs implemented directly with face to face counseling or by providing self-learning videos and written brochures, together with postnatal lactation support and counseling are regarded as important interventions to improve the rate of initiation and continuation of EBF, and to improve the overall BF practice [10].

Intention and planning to breastfeeding are related to the amount of knowledge and awareness women have antenatally, and these in turn, will be reflected on their attitude and practice after delivery. Accurate evaluation of knowledge, awareness and attitude should be highlighted in breastfeeding-focused studies. Standardized scales have been implemented to assess feeding knowledge and attitude. The Iowa infant feeding attitude scale (IIFAS) was designed to measure women's attitude towards breastfeeding and has been validated to be a reliable method for this purpose [11]. Similarly, the Infant Feeding Knowledge Test Forma A (AFORM) has been used as a valid and reliable tool to assess women's knowledge and awareness about breastfeeding and its benefits [12].

In Jordan, EBF was a traditional practice a few decades ago. More recently, trends of breastfeeding have changed among Jordanian women. Little research has been conducted in the past decade reviewing the rates and trends of breastfeeding. We reported few years ago an EBF rate of 33% in infants aged six months [13]. However, published studies have not focused on assessing women's perception towards breastfeeding. Analysis of the factors that contribute to women's attitude and planning should be targeted in breastfeeding studies and are expected to act as guidance for healthcare administration and policy making agencies in order to enhance EBF rates and to improve the overall breastfeeding practice. We, therefore, conducted this questionnaire survey to assess the knowledge, awareness, motivation, attitude and planning of breastfeeding among Jordanian women in the antenatal and immediate postpartum periods, and to determine the factors associated with EBF.

## Methods

After obtaining approval from the Institutional Review Board at Jordan University of Science and Technology (IRB Number 505–2019), a face-to-face cross sectional semi-structured questionnaire survey was distributed to two groups of healthy women at three hospitals in the city of Irbid in North of Jordan during the period August 2019 to December 2019. One hospital, King Abdullah University Hospital

(KAUH), is a tertiary academic center. The other two hospitals are a military hospital, and a public ministry of health affiliated hospital. The three hospitals provide health service to more than two million of the Jordanian population with an annual number of deliveries exceeding twenty thousand. The majority of inhabitants in our district are middle class families with health insurance coverage through government and employment.

The first group of participants consisted of healthy pregnant women in the second or third trimester of gestation who presented for regular antenatal visit at the outpatient obstetric clinics. The second group included newly delivered women in the postpartum unit within 24 hours after delivery. Women or infants who cannot breastfeed for medical reasons were excluded from the study. All women who agreed to participate signed a written informed consent at the time of the interview. The purpose of including two different groups of pregnant and newly delivered women was to get a random representative sample of our population. During data analysis, we did not intend to compare both groups. Unless there was a statistically significant difference between both subgroups in any of the variables or outcomes, both groups were combined into one group and data was accordingly analyzed and reported.

To examine the association between women's planning to breastfeed with their awareness and knowledge, using a Pearson correlation coefficient of 0.2 as an estimate for this relation and assuming an 80% power and a 5% margin of error, a minimum sample size of 643 participants was needed to evaluate the women's intention to EBF assuming a population-based rate of EBF around 50% with a 99% level of confidence.

The survey questions used for data collection were created using the IIFAS and the AFORM as the main references. These scales have been proven to be valid and reliable, and have been utilized in multiple breastfeeding-related studies [11, 12, 14]. We have modified some of the questions included in these scales to fit our population and culture. We have also combined some questions and changed the choices of the answers for some other questions from a five-point Likert scale to answering a direct open-ended question.

Questions included data about maternal demographics and newborn characteristics (for postpartum mothers). Knowledge and awareness were assessed using eight items with a yes/no answer for each item. Examples of knowledge related items include awareness about WHO recommendation, definition of EBF, allowed vitamin supplements, role of BF in a better infant's health, and the benefit of BF to protect mother against certain malignancies. Correct answers were awarded one point each. Any participant who achieved a total mark of 4 or more points (equivalent to 50% on the scale) was documented as knowledgeable.

Women's attitude towards breastfeeding was assessed in a separate session utilizing 10 selected items from the IIFAS, and they were offered to choose an answer of agree vs disagree. Examples include whether "BF improves bonding, BF improves immunity, BF results in better infant's weight gain, BF is considered the most ideal food, 1st feeding should be colostrum, BF is cheaper, BF easily digested with better tolerance, whether you prefer rooming in, agree with using infant formula, back to work is not a

barrier against breastfeeding". Each answer was awarded one mark if it favors breastfeeding and zero mark if it favors formula feeding. Any woman with a total score of 5 or more out of 10 was documented as having a positive attitude towards breastfeeding.

Another major part of the survey questionnaire focused on the support women receive from their obstetric care providers, husbands, other relatives, and work environment. Data was collected with direct open-ended questions selecting a yes or no answer. Planning and intention for feeding was assessed in another session utilizing the Infant Feeding Intentions scale as a guide, and women were accordingly categorized into three groups; exclusive breastfeeding (if they plan to breastfeed only without any supplement), mixed feeding or exclusive formula feeding. The reasons for mother preferences were ascertained as applied.

After a thorough training and final agreement on the study questionnaire by all authors, the created questions were translated from English to Arabic language, and then translated back into English version by a different person to ensure reliability and accuracy. After that, direct face-to-face interviews were conducted by two postgraduate physicians using both languages as needed. Answers were documented on the same questionnaire sheet for each participant. The study questionnaire was reassessed after a pilot review on a sample of 20 women, after which some more explanatory information was added to some of the questions related to knowledge and planning. Data was then transferred into an excel sheet and transcribed into different codes to facilitate data analysis.

## **Statistical analysis**

Data was analyzed using SPSS version 22. Continuous and categorical variables were presented using means and standard deviations (SD) or numbers and proportions as appropriate. Proportions of women who reported their intention to EBF were compared by each independent variable using chi-square distribution and p-values were reported accordingly. Variables with p-values of less than 0.25 were introduced into the logistic regression models. Backward logistic regression analysis was utilized to calculate the adjusted effect of independent variables on EBF intention. Adjusted odds ratios (adj OR) and 95% Confidence Intervals (C.I.) were reported.

## **Results**

A total of 680 women were randomly approached to participate in this face-to-face survey. 660 women completed the survey questionnaire representing a 97% response rate. Participants were equally distributed between both groups; 330 pregnant women in the antenatal care clinic, and 330 newly delivered women in the postpartum unit. Table no. 1 summarizes the demographics of the women and their infants as applicable. The majority were between 20 and 35 years of age. 10% were primiparous. Two thirds had experience with breastfeeding with their previous children in the past. 30% were employed. Among women in the newly delivered group, 70% had C-section and nearly 30% of them had their infants admitted to the neonatal ICU.

Women's knowledge and attitude towards breastfeeding, as well as the support and counseling they received about its practice were summarized in table no.2. Around 78% were knowledgeable (received a score of 4 or more in the knowledge scale) about the benefits of breastfeeding and the WHO recommendation regarding BF practice. When asked about their knowledge and awareness regarding the benefits of breastfeeding, the most correctly selected answer was about the positive effect of breastfeeding on the infant's immunity (85%). However, only 5% knew that EBF may act as a contraceptive method. Also, 72% had a positive attitude towards breastfeeding (received a score of 5 or more in the attitude scale) which was mostly reflected by their preference to have colostrum as the first feeding given to their infants and by reporting that breast milk is cheaper, has adequate nutritional content and improves mother-infant bonding. Despite having a collectively positive attitude towards breastfeeding, 75% preferred not to have their infants stay with them in the postpartum ward all the time and agreed towards a mixed feeding pattern during their stay in the newborn nursery or neonatal ICU.

Less than 20% of participants reported that their treating obstetrician talked to them about breastfeeding or encouraged them to breastfeed their infants. On the other hand, more than half indicated receiving support from their husbands.

As seen in table no. 3, the majority of participants (97%) reported their intention to breastfeed and more than half indicated their plan to exclusively BF. More than 75% indicated their plan to continue breastfeeding for more than 6 months. The association between women's plan to EBF and demographic factors, knowledge, attitude, and support was summarized in Table no. 4. After identifying factors associated with EBF, a multilogistic regression model was applied to determine predictors and barriers. The predictors of EBF include primiparity (AOR 1.79), positive attitude (AOR 1.80) as well as positive support from husband (AOR 1.92). Barriers include employment (AOR 0.42) and low birth weight (AOR 0.46) table no. 5.

## Discussion

In this local multi hospital-based sample of pregnant and newly delivered women, we reported that Jordanian women are highly knowledgeable about the benefits of breastfeeding, aware of the WHO recommendations, exhibit a positive attitude towards breastfeeding and the majority plan on breastfeeding their infants for at least 6 months.

Decision towards BF practice is affected by multiple factors including knowledge, awareness, attitudes and motivation. In our cohort, when participants were asked about the benefits of breastfeeding, most of them volunteered to report that breast milk significantly contributes to a better infant's immunity and less risk of infections even before directly asking them to answer that question. Several other studies that focused on assessing women's knowledge about the benefits of BF concluded that women have excellent fund of knowledge regarding certain aspects of breast milk benefits mainly its impact on immunity and good infant health outcomes [15]. Moreover, Raissian et al reported that prenatal intention was considered a strong factor associated with infant health even if infants were not breastfed [16]. The

major gap in women's knowledge about BF in certain cultures is related to their perception that breast milk might not contain adequate nutritional supply, and this is the major reason to start supplementing with infant formula. This perceived belief has been highlighted in previous studies from the Middle East region [17, 18]. This misconception was found to be less obvious in mothers with older age and with a previous experience with breastfeeding [19]. Some knowledge related studies about BF in the Arab world targeted college students in healthcare sections and reported variable results according to the item tested [20, 21]

With a positive attitude, women acquire a great motivation, and this will be reflected on their intentions and practices. Our finding of positive association between positive attitude and planning to BF is consistent with several studies from USA and UK [22, 23]. However, the attitude towards BF might be negatively influenced by local hospital set-up. With the busy clinic schedule and labor wards, the lack of health care education together with the absence of baby friendly units in our hospitals could have contributed to this trend. Although our participants indicated their preference to have their babies receive colostrum as their initial feeding, a good percentage preferred to have their infants stay in the newborn nursery and agreed with using infant formula at times. Similarly, Ogbuanu 2009 and Shaker 2004 have reported that lack of consistent education by the hospital staff was a strong barrier to EBF[19, 24].

The baby friendly initiative was established in the early 1990's to improve the rate of EBF[25]. However, there has been no consistency about its impact on the rate of EBF among different institutions and countries. Therefore, it is believed that promoting the best BF practices should start long time before delivery and should be included in the antenatal education and care. Other reports concluded that the education process is an ongoing task and should continue after home discharge to avoid early cessation of BF [26].

Besides its association with a positive women's attitude, we reported that the intention to breastfeed was significantly determined by the support women receive towards BF practice. Research has repeatedly found that women's pre-birth BF intention is a good predictor of the actual duration of BF [7]. Regardless of women's beliefs and planning, BF practice is highly dependent on the amount of support they receive from their husbands, health care providers, relatives, friends, work environment and hospital staff [10]. In our cohort, husband's support was a major predictor for BF, while limited support and counseling by the obstetric care provider was reported by most of our participants as a major concern. Our findings are consistent with several other studies including systematic reviews and meta-analysis reports [27, 28]. In their recently published study, SA Van Dellen 2019 et al. examined the association between BF practice and a comprehensive evidence based intervention named "Breastfeeding Support Program, BSP" that combines antenatal and postpartum support and education, and concluded that BSP promotes longer duration and higher exclusivity of BF among their participants [29]. Additionally, the strong association between husband's support and intention to breastfeed among the women in our culture makes us believe that husbands should attend the antenatal and postnatal educational sessions about BF as their influences might have a great impact on their wives' intentions.

One of the main challenges in promoting EBF practice is related to maintaining BF for the recommended period rather than its initiation after birth[26]. The effect of women's education and employment status on BF practice has been inconsistent [30]. The rate of employed women in our studied population was 30%. The majority of them answered "Going back to work after short maternity leave with limited support and space to breastfeed our infants while at work" as the major reason against EBF. Our finding regarding women's concern about breastfeeding in the work environment is in agreement with several other reports from the region [13, 31]. On the other hand, Wallenborn 2019 reported that work environment support was strongly associated not only with a higher BF rate, but also with a positive self-efficacy and a longer duration of BF[32].

Despite the challenges that might interfere with BF, our report's finding of high women's knowledge and positive attitude are promising determinants for improving the BF practice in Jordan. This study is not without limitations. Although the participants in our study were randomly selected, they do represent the inhabitants of our region who mostly belong to the middle socioeconomic group only. A population-based study including higher and lower socioeconomic groups will give more accurate data to represent the whole Jordanian population. Also, it is important to mention that the reported rates in this study reflect women's planning towards BF and might not reflect the actual rate of BF given the potential limitations that women might encounter against BF with time. Accordingly, educational sessions should focus on these challenges and offer women solutions for better adaptation.

## Conclusion

In conclusion, it is crucial to determine the factors that contribute to women's planning to breastfeed their infants, so that targeted counseling programs and motivation strategies are established to improve the BF practice in our country. Appropriate public health policies to help mothers breastfeed for at least six months, and to remove the barriers to BF, will be required to meet the WHO recommendations. Focusing on antenatal educational programs as well as healthcare provider support and counseling should be included as essential components in the antenatal and postnatal care to improve the practice of breastfeeding in our population. With the advance in technology, utilizing social media resources could be of a great assist in achieving these goals.

## Abbreviations

BF  
Breastfeeding  
EBF  
Exclusive Breastfeeding  
WHO  
World Health Organization  
AAP  
American Academy of Pediatrics

IIFAS

The Iowa infant feeding attitude scale

AFORM

The Infant Feeding Knowledge Test Forma A

IRB

Institutional Board Review

## Declarations

### **Ethics approval:**

The Institutional Board Review (IRB) at Jordan University of Science and Technology approved the study. (IRB 505-2019)

A written informed consent was obtained from the study participants to answer the survey questions

**Consent for publication:** Not applicable

### **Availability**

The datasets used and analyzed during our study are available from the corresponding author upon reasonable request.

**Competing interest:** All authors have no conflict of interest

**Funding:** None

### **Authors' contribution:**

**WK:** Made substantial contribution to study design and literature review. Participated in data auditing, analysis and interpretation. Involved in drafting the manuscript and revising it critically for important intellectual content.

**KK:** Made substantial contribution to data analysis and interpretation. Involved in revising the manuscript critically for important intellectual content.

**MM:** Participated in data acquisition and interpretation. Involved in drafting the manuscript and revising it critically for important intellectual content.

**SA:** Participated in data acquisition and interpretation. Involved in drafting the manuscript and revising it critically for important intellectual content.

All authors give final approval for the version to be published and agreed to be accountable for

all aspects of the work.

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## Tables

### Table No. 1 Maternal and Infant characteristics

		Total (N=660)	
		Number	Percent
Age(years)	Mean±SD (30.1±5.8)		
	less than 20	12	1.8
	20 to 35	522	79.1
	more than 35	126	19.1
Parity			
	Primi	72	10.9
	Multi	588	89.1
Previous BF experience			
	None	207	31.4
	Partial < 6 months	23	3.5
	EBF < 6 months	119	18.0
	Any BF > 6 months	311	47.1
Education			
	< high school	103	15.6
	high school	162	24.5
	> high school	395	59.8
Employment Status			
	No	467	70.8
	Yes	193	29.2
Income (JOD)			
	< 500	396	60.0
	500 - 1000	230	34.8
	> 1000	34	5.2
		Total (330)	
		Number	Percentage
Delivery			
	Vaginal	102	31

C-section	228	69
Gestational age (weeks)		
Mean±SD (38 ±2.3)		
<37	48	15
≥37	282	85
Gender		
Male	157	48
Female	173	52
NICU admission		
No	235	71
Yes	95	29
Birth weight Mean±SD (2942±646)		
<2500 grams)	69	21
≥2500 grams)	261	79

BF: Breastfeeding, EBF: Exclusive breastfeeding

JOD: Jordanian dinars, NICU: Neonatal intensive care unit

**Table No. 2 Knowledge, Attitude and Support**

	Total (660)	
	Number	Percent
Knowledgeable (AFORM >4*)		
No	144	21.8
Yes	516	78.2
Positive Attitude (IIFAS >5©)		
No	182	27.6
Yes	478	72.4
Obstetric education		
No	538	81.5
Yes	122	18.3
Husband support		
No	298	45.2
Yes	362	54.8
Other Support		
None	78	11.8
Relatives	88	13.3
Healthcare	474	71.8
Work	11	1.7

\*: Modified FORM A scale

©: Modified Iowa Infant Feeding Attitude Scale

**Table No. 3: Intention and Planning**

	Total	
	Number	Percent
Feeding plan		
BF only	352	53.3
Mixed	289	43.8
Formula	19	2.9
Breastfeeding duration		
Never	19	2.9
1 month	8	1.2
1-6 months	123	18.6
>6 months	510	77.3

BF: Breastfeeding

**Table 4: Planning to EBF according to social characteristics, Knowledge, attitude and support**

		EBF (n,%)				<i>P-value</i>
		No		Yes		
Age (years)	< 20	4	33.3%	8	66.7%	<i>0.135</i>
	20 to 35	236	45.2%	286	54.8%	
	≥ 35	68	54.0%	58	46.0%	
Parity	Primi	23	31.9%	49	68.1%	<i>0.005</i>
	Multi	285	48.5%	303	51.5%	
Previous BF experience	None	89	43.0%	118	57.0%	<i>0.266</i>
	Partial< 6 months	13	56.5%	10	43.5%	
	EBF< 6 months	63	52.9%	56	47.1%	
	Any BF > 6 months	143	46.0%	168	54.0%	
Education	< high school	38	36.9%	65	63.1%	<i>0.004</i>
	high school	65	40.1%	97	59.9%	
	> high school	205	51.9%	190	48.1%	
Employment status	No	181	38.8%	286	61.2%	<i>0.000</i>
	Yes	127	65.8%	66	34.2%	
Income (JOD)	< 500	162	40.9%	234	59.1%	<i>0.000</i>
	500 - 1000	121	52.6%	109	47.4%	
	> 1000	25	73.5%	9	26.5%	
Delivery mode	VD	49	48.0%	53	52.0%	<i>0.360</i>
	CS	116	50.9%	112	49.1%	
Gestational age (weeks)	< 37	27	56.3%	21	43.8%	<i>0.218</i>
	≥ 37	138	48.9%	144	51.1%	
Gender	Male	77	49.0%	80	51.0%	<i>0.413</i>
	Female	88	50.9%	85	49.1%	
Birth weight (grams)	< 2500	41	59.4%	28	40.6%	<i>0.05</i>
	≥ 2500	124	47.5%	137	52.5%	
NICU admission	No	119	50.0%	119	50.0%	<i>0.514</i>
	Yes	48	50.5%	47	49.5%	

Knowledgeable	No	72	50.0%	72	50.0%	0.208
	Yes	236	45.7%	280	54.3%	
Positive attitude	No	103	56.6%	79	43.4%	0.001
	Yes	205	42.9%	273	57.1%	
Obstetric education	No	250	46.5%	288	53.5%	0.454
	Yes	58	47.5%	64	52.5%	
Husband support	No	153	51.3%	145	48.7%	0.018
	Yes	155	42.8%	207	57.2%	
Other Support	None	43	55.1%	35	44.9%	0.106
	Relatives	34	38.6%	54	61.4%	
	Healthcare	222	46.8%	252	53.2%	
	work	3	27.3%	8	72.7%	

BF: Breastfeeding, EBF: Exclusive breastfeeding

JOD: Jordanian dinars, NICU: Neonatal intensive care unit

VD: Vaginal delivery, CS: cesarean section

**Table no. 5 Multilogistic regression analysis of factors associated with EBF**

		<i>P-value</i>	AOR	95% C.I.	
				Lower	Upper
Parity	Primi	<i>0.05</i>	1.79	1.1	3.25
	Multi		1		
Employment status	No		1		
	Yes	<i>0.001</i>	0.43	0.26	0.70
Birth weight	<2500	<i>0.012</i>	0.46	0.25	0.84
	≥ 2500		1		
Positive attitude	No		1		
	Yes	<i>0.033</i>	1.80	1.05	3.10
Husband support	No		1		
	Yes	<i>0.009</i>	1.92	1.18	3.15

EBF: exclusive breastfeeding

AOR: Adjusted odds ratio, C.I: Confidence interval