



Determinants of Breastfeeding Attitude and Practice among Saudi Mothers in Saudi Arabia

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DOI: 10.31080/ASNH.2023.07.1252

Received: May 22, 2023

Published: May 29, 2023

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Abstract

Background: Breastfeeding is considered one of the best strategies to ensure a child's health and survival. Breastfeeding is the process of a mother giving breast milk to her child, either directly from the breast or by pumping the milk out of the breast and giving it to the child in a bottle.

Aim: This study aims to describe attitudes and practice towards breastfeeding and factors affecting them among Saudi mothers in Saudi Arabia.

Methods: This is an analytical cross-sectional study design. The sample size was calculated to be 385 of Saudi mothers with a last child aged two years or older. A convenient sampling technique was used to recruit the mothers. The study was conducted from August 2022 to May 2023. An online self-administered questionnaire was used.

Results: The study has found that prevalence of breastfeeding was 82% among study participants. The attitude questions were coded and then categorized into positive and negative. 91% of the participants had a positive attitude towards breastfeeding. It was found that there was a statistically significant relationship between the time of initiation and duration of breastfeeding ($p = 0.0240$).

Conclusions: Attitude towards breastfeeding among our participants is positive compared to previous studies, which might be due to Saudi efforts to improve breastfeeding to match with Saudi Vision 2030.

Recommendation: We recommend to policy makers to increase the duration of paid leave for working mothers.

Keywords: Breastfeeding; Attitude; Practice; Factors; Duration; Initiation

Introduction

According to the WHO, breastfeeding is considered one of the best strategies to ensure a child's health and survival [1]. Breastfeeding is the process of a mother giving breast milk to her child, either directly from the breast or by pumping the milk out of the breast and giving it to the child in a bottle [2]. It is the best strategy for infant feeding. Breast milk is the best source of nutrients. Mother breast milk changes as an infant grows to match his or her nutritional needs. Additionally, breastfeeding brings short-term and long-term benefits for infants, and mothers and ward off some short- and long-term ailments and diseases [3]. Breastfeeding of-

fers the best natural nourishment for the newborn and infant [1]. It is a vital public health approach with numerous advantages for mothers, infants, and young children [3]. For newborns, breastmilk is the best food. It contains antibodies that aid in preventing several prevalent pediatric ailments, and it is secure and hygienic. During the second half of a child's first year and up to one-third of their second year, breastmilk continues to provide all a child needs in terms of energy and nutrition [4].

Methodology

Study design and setting

This analytical cross-sectional study was carried out among Saudi mothers in Saudi Arabia to describe attitudes and practices

towards breastfeeding and the factors affecting them. The study was conducted during the period between August 2022 to May 2023.

Sample Size

The sample size was calculated using the software "n4studies application [5]. The infinite population proportion was chosen using the following formula because the study is cross-sectional, and the target population exceeds ten thousand.

Where,

P = proportion of the Saudi mothers in Saudi Arabia = 50% out of 14,747,165, [6] (female population in Saudi Arabia).

a = standard normal deviation usually set at 1.96, corresponding to a 95% confidence limit.

d = the usual level of accuracy is 0.05

n = desired sample size, $a = \alpha$ sample = 0.05

$q = 1-p$ = proportion in the target population, and not having that particular characteristic.

Design effect = 1

$$n = \frac{Z^2 Pq}{d^2}$$

Which gives a sample size of 385 Saudi mothers in Saudi Arabia.

Sampling

Study participants were recruited using a non-probability sampling technique (convenient sampling) for limited resources and time.

Study participants

The study population included Saudi mothers living in Saudi Arabia with a last child aged two years or older, the questionnaire was filled in by 385 participants.

Inclusion criteria

All Saudi mothers with a last child aged two years or older were included.

Data collection

Data collection was done using a self-administered pre-designed questionnaire. This questionnaire was sent to the participants through social media (Telegram, WhatsApp and Twitter).

Google Forms were used to create the research questionnaire, which was then shared in Arabic-language through social media platforms like WhatsApp, Twitter, Snap Chat, and Telegram.

Data collection tool

The questionnaire consisted of 4 sections: the first part was about the participant's sociodemographic data, which included (7

questions) about age, educational level, work status, living region, number of children, youngest child's age, and type of delivery. The second part was about mothers' attitudes toward breastfeeding, including (7 questions). In this part, the answers were in the form of a scale (agree, scored to be 3; disagree, scored to be 1; neutral, scored to be 2). The total score of attitudes was 21. The cut off point for negative attitude between (7 to 11.6 points). The cut off point for neutral attitude between (11.6 to 16.2 points), while more than (16.2) is considered positive attitude. The third part was about data on the practice of breastfeeding among mothers, including (3 questions). The fourth part of the questions consists of 3 questions, and the first question is about whether the mother have reason barriers to breastfeed her baby, and the response is in the form of yes/ no/ I do not know. The second question is in a checkbox format which asks about the factors that barriers to breastfeeding. The last question in this section is also a checkbox and asks about the factors that motivated breastfeeding.

Validity and reliability of the questionnaire

Translation method

using the forward-backward method, the tool was translated to Arabic and presented to participants in Arabic.

Validity

The study questionnaire was validated using three measures. First, the questionnaire was reviewed by three experts from the Health Education Program, College of Health and Rehabilitation and their recommended modifications were made. Then a pilot study was conducted on 30 mothers (not included in the final sample) to test their understanding of the questions.

Reliability

Cronbach alpha test was applied to the pilot study results to test reliability of the questionnaire. The test showed that all attitude questions were statistically significant except for one question which was deleted. Then Cronbach alpha test was redone, and the overall score was acceptable with the $\alpha=0.6171$. An evaluation tool's internal consistency is determined by Cronbach's alpha, a measurement. Acceptable Cronbach's alpha values range from 0.6 to 0.8 [7].

Statistical analysis

Statistical analysis was conducted using the software JMP Version 17 [8]. Frequency tables were created for the descriptive data. Analytical statistics were conducted by calculating the p-value and Chi-square test to test the relationship between mothers' attitudes and practices towards breastfeeding and the initiation and duration of breastfeeding. Simple linear regression was performed to assess the relationship between attitudes and practices towards breastfeeding. Also, multiple logistic regression model was per-

formed to define the factors that mostly affect the practice towards breastfeeding.

Ethical approval

Official approval to conduct the study was obtained from the ethics committee of Princess Nourah bint Abdulrahman University. With the number of (22-1066). The participants who were accepted to participate in the study were informed about the aim of the study. Participation in this study is voluntary, and they gave their informed consent by answering the questionnaire. In addition, the participants were assured that their data would only be used for this research and that their responses would remain anonymous and confidential.

Personal characteristics	No. (%)
Current age (years)	
15-25	22 (5.71)
26-35	126 (32.73)
36-45	165 (42.86)
46 and older	72 (18.70)
Educational level	
Less than bachelor’s degree	80 (20.78)
Bachelor’s degree or above	305 (79.22)
Current job	
Employed or working outside the home	192 (49.87)
Housewife	178 (46.23)
Student	15 (3.90)
Number of Children	
1	60 (15.58)
2 – 3	134 (34.81)
4 and more	191 (49.61)
Type of delivery	
Vaginal	244 (63.38)
Caesarean	141 (36.62)

Table 1: Socio-demographic characteristics among study participants (N = 385).

Results

Table 1 demonstrates the socio-demographic characteristics of study participants. The results showed that most of the study participants (42.86%) were aged 36-45. Most participants reported that they had bachelor’s degree or above (79.22%). Half of the sample (49.87%) were employed or working outside the home. Almost half of the study participants (49.61%) have four and more children. The most common type of delivery for the last child was the vaginal delivery (63.38%).

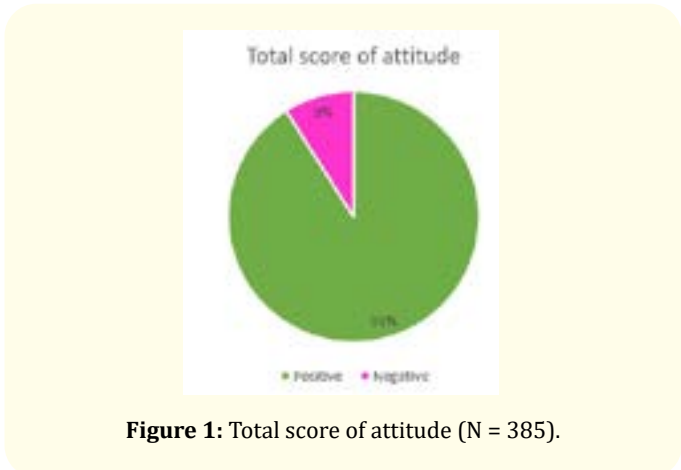


Figure 1: Total score of attitude (N = 385).

Figure 1 Presents the total score of attitude towards breastfeeding, where (91%) of participants have a positive attitude.

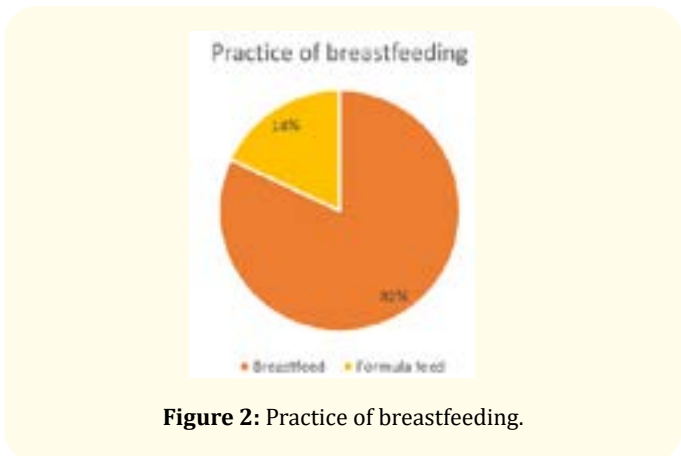


Figure 2: Practice of breastfeeding.

Figure 2 Presents the practice of breastfeeding, where (82%) of participants are breastfeeding their child.

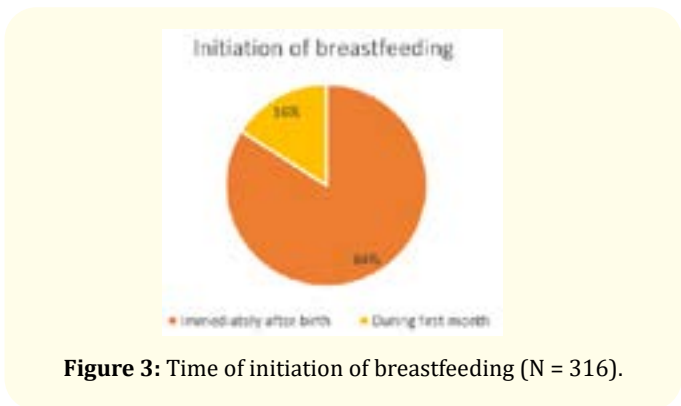


Figure 3: Time of initiation of breastfeeding (N = 316).

Figure 3 presents the time of initiation of breastfeeding, where (84%) of mothers who breastfeed have started to breastfeed immediately after birth.

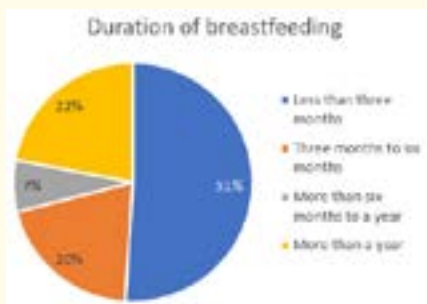


Figure 4: Duration of breastfeeding (N = 316).

Figure 4 presents the duration of breastfeeding, where most of the women (51%) breastfed for less than three months, while the least prevalent duration of breastfeeding was more than six months to a year (7%).



Figure 5: Barriers to breastfeeding (N = 385).

Figure 5 presents barriers to breastfeeding. It reveals that the most common barrier was the low milk supply (22%), and breast or nipple problems comes as the second barrier (12%).



Figure 6: Factors that motivate breastfeeding (N = 385).

Figure 6 demonstrates the factors that motivate breastfeeding. It was found that the most common factor that motivates women to breastfeed was having supportive media messages (35%), then comes the availability of sufficient time to breastfeed (22%).

Table 2 demonstrates the relationship between time of initiation and duration of breastfeeding among study participants. This relationship was found to be statistically significant (p = 0.02), and this means that the earlier the onset, the longer the duration of breastfeeding.

	Time of initiation breast-feeding		Chi square test (p value)
	Immediately after birth N (261)	During first month N (55)	
Duration of breastfeeding	N (%)	N (%)	9.434 0.0240*
Less than three months	85 (32.57)	30 (54.55)	
Three months to six months	61 (23.37)	10 (18.18)	
More than six months to year	37 (14.18)	5 (9.09)	
More than a year	78 (29.89)	10 (18.18)	

Table 2: Relationship between time of initiation and duration of breastfeeding among study participants (N = 316).

*Statistically significant (p < 0.05).

Table 3 demonstrates the relationship between attitude and practice towards breastfeeding among mothers who breastfeed. The results show that there is a significant association (0.0014).

	Positive attitude N (%)	Neutral attitude N (%)	Chi square test(p value)
Practice N (385)	N (%)	N (%)	19.449 0.0001*
Breastfeeding	297 (84.86)	16 (45.71)	
Formula feed	53 (15.14)	19 (54.29)	
Time of initiation of breast-feeding N (316)			0.038 0.8463
Immediately after birth	245 (82.49)	16 (84.21)	
During the first month	52 (17.51)	3 (15.79)	
Duration of breastfeeding N (316)			15.518 0.0014*
Less than three months	107 (36.03)	8 (42.11)	
Three months to six months	62 (20.88)	9 (47.37)	
More than six months to a year	40 (13.47)	2 (10.53)	
More than a year	88 (29.63)	0 (0.00)	

Table 3: Relationship between breastfeeding practice and attitude among participants.

*Statistically significant (p < 0.05).

between the attitudes towards breastfeeding and the duration of breastfeeding. While the relationship between the time of initiation of breastfeeding and the attitude shows that there is no significant association (0.8463). There was no negative attitude among the participants.

Table 4 demonstrates the relationship between attitude and socio-demographic characteristics. From the socio-demographic characteristics, only the mothers age and the number of children

has shown statistically significant relationship with the attitudes ($p < 0.05$), which mean that the older the mothers and the more kids they have, the better attitude will be towards breastfeeding.

Table 5 demonstrates the relationship between the practice of breastfeeding and socio-demographic characteristics among participants. Socio demographic characteristic are statistically significant related to breastfeeding. Breastfeeding more common among older women, with more children, who are working outside the

Socio-demographic characteristics	Positive attitude N (350)	Neutral attitude N (33)	P-value
	N (%)	N (%)	0.0001*
Current age (years)			
15-25	19 (5.43)	9 (25.71)	
26-35	110 (31.43)	10 (28.71)	
36-45	153 (43.71)	12 (34.29)	
46 and older	68 (19.43)	4 (11.43)	
Education level			0.1122
Less than bachelor's degree	71 (20.29)	9 (25.71)	
Bachelor's degree or above	279 (79.71)	26 (74.29)	
Current job			0.6534
Housewife	157 (44.86)	21 (60.00)	
Student	15 (4.29)	0 (0.00)	
Employed or working outside home	178 (50.86)	14 (40.00)	
Number of children			0.0134*
1	52 (14.86)	8 (22.86)	
2-3	121 (34.57)	13 (37.14)	
4 and more	177 (50.57)	14 (40.00)	
Type of delivery			0.6373
Vaginal	220 (62.86)	24 (68.57)	
Caesarean	130 (37.14)	11 (31.43)	

Table 4: Relationship between attitude and socio-demographic characteristics..

* Statistically significant ($p < 0.05$).

Socio-demographic characteristics	Breastfeeding N (316)	Formula feeding N (69)	P value
	N (%)	N (%)	0.0042*
Current age (years)			
15-25	14 (4.43)	8 (11.59)	
26-35	95 (30.06)	31 (44.93)	
36-45	146 (46.20)	19 (27.54)	
46 and older	61 (19.30)	11 (15.94)	
Education level			0.0420*
Less than bachelor's degree	58 (18.35)	22 (31.88)	
Bachelor's degree or above	258 (81.65)	47 (68.12)	

Current job			0.0456*
Housewife	144 (45.57)	34 (49.28)	
Student	9 (2.85)	6 (8.70)	
Employed or working outside the home	163 (51.58)	29 (42.03)	
Number of children			0.0102*
1	45 (14.24)	15 (27.74)	
2-3	107 (33.86)	27 (39.13)	
4 and more	164 (51.90)	27 (39.13)	
Type of delivery for your last child			0.0353*
Vaginal	208 (65.82)	36 (52.17)	
Caesarean	108 (34.18)	33 (47.83)	

Table 5: Relationship between practice and socio-demographic characteristics.

*Statistically significant (p < 0.05)

home, who had their last child through vaginal delivery and breastfeeding is more common among women with higher education.

Table 6 shows the multiple logistic regression model using a stepwise backward method to identify the statistically significant factors that affect practice of breastfeeding. The regression model

was applied to 16 barrier factors and 9 motivating factors, and out of them, 16 factors were not included, while 3 obstacle factors (paid leave, maintaining the shape, and psychiatric disturbances), and 4 motivating factors (sufficient time, family encouragement, mother desire, and having previous information) were found to be statistically significantly affecting breastfeeding practice.

Dependent Y	Breastfeeding practice					
Method	Backward					
Enter variable if P<	0.05					
Remove variable if P>	0.1					
Sample size	385					
breastfeeding ^a	316 (82.08%)					
Formula feeding ^b	69 (17.92%)					
Overall Model Fit						
Null model -2 Log Likelihood	358.221					
Full model -2 Log Likelihood	299.690					
Chi-squared	58.531					
DF	9					
Significance level	P < 0.0001					
Cox & Snell R2	0.1417					
Nagelkerke R2	0.2333					
Odds Ratios, 95% Confidence Intervals and Coefficients and Standard Errors						
Variable	Coefficient	Std. Error	Wald	P value	Odds ratio	95% CI
Breast or nipple problem	-0.62012	0.34123	3.3026	0.0692	0.5379	0.2756 to 1.0499
Psychiatric disturbances	-1.39732	0.53005	6.9496	0.0084	0.2473	0.0875 to 0.6988
Maintaining the shape	-1.25394	0.60558	4.2876	0.0384	0.2854	0.0871 to 0.9352
Overweight	1.64997	0.95145	3.0073	0.0829	5.2068	0.8066 to 33.6097
Sufficient time	0.92602	0.47039	3.8754	0.0490	2.5245	1.0041 to 6.3471
Family encouragement	0.93012	0.36581	6.4649	0.0110	2.5348	1.2375 to 5.1920
Paid leave	-1.41057	0.56030	6.3380	0.0118	0.2440	0.0814 to 0.7317
Mother desire	1.43365	0.30976	21.4213	<0.0001	4.1940	2.2854 to 7.6965
Having previous information	0.65706	0.31009	4.4900	0.0341	1.9291	1.0505 to 3.5425
Constant	0.56910	0.28134	4.0917	0.0431		

Table 6: Logistic regression model.

Discussion

The current study is conducted on 385 Saudi mothers in Saudi Arabia to describe their attitude and practices towards breastfeeding and the factors affecting them. In this research, we found that 91% of participants have a positive attitude which is higher than the study conducted in Riyadh (2021) where the majority of participants had negative attitude toward breastfeeding [9] which might reflect improvement in the attitude of Saudi mothers towards breastfeeding.

In the current study, 82.1% of the participants had breastfed their children which is lower than a previous study done in Saudi Arabia that reported that the breastfeeding rate to be 91.7% of mothers [10] and was 87.1% in another study [11]. This could be explained by the differences in sociodemographic, which might have varying effects on the rate of breastfeeding [12]. In this research, 84% of mothers breastfeed immediately after birth which is higher than study conducted in Saudi Arabia (2019) showed that the early initiation of breastfeeding was 43.6% [10]. Most of the mothers (50.95%) in the current study were breastfeeding their kids for less than three months; which is less than the WHO target for raising duration of breastfeeding till 6 months of life by at least 50% by 2025 [1], which could be explained by that women nowadays play a variety of roles in addition to becoming mothers, such as pursuing higher education, having a good job, and participating in society.

A study conducted in Saudi Arabia in 2021 indicated that insufficient breast milk was associated with a lower breastfeeding rate [12]. The same finding was evident in our current study. Low milk supply was the most frequent factor hindering breastfeeding (21.70%). According to WHO and study conducted in United States showed that the earlier the mothers to start breastfeeding after birth the longer the duration of breastfeeding [13][14]. Similarly, our findings showed that there is a statistically significant relation between earlier breastfeeding and longer duration of breastfeeding [$p=0.0240$].

The current study showed that older mothers and higher number of children per family have better attitude and practice towards breastfeeding ($p<0.05$). The CDC and others had reported similar findings that younger mothers are less likely to breastfeed than older mothers and the mothers' decisions to breastfeed are influenced by the number of children per family [16][17]. A study conducted in Saudi Arabia (2021) showed that the women who works outside home are more likely to breastfeed [18] which is similar to the findings in the current study. This reflects a change in the factors that affect breastfeeding as previously being a working mother was an obstacle to breastfeed, but now improved knowledge, attitude and the evolution of modern breast milk pumping tools may have increased breastfeeding among working women. The current study has found that breastfeeding is more frequent among mothers who had vaginal delivery for the last child, which is similar to study con-

ducted in Italy [19]. Women who give birth vaginally might be able to start breastfeeding earlier than those who have a cesarean as vaginal mothers may feel less pain and recover more quickly. They could find it simpler to take care of their infant and breastfeed as a result. The early start of breastfeeding can support effective breastfeeding and create a decent milk supply. This study has found that breastfeeding is more frequent among women with higher education which is similar to another study conducted in Saudi Arabia [18] which might indicate that higher educated women may be more likely to have better breastfeeding knowledge, earn more money, have greater access to resources like lactation consultation and breast pumps, as well as supportive workplaces that provide time off for pumping and breastfeeding. In addition, women with greater levels of education may be more likely to reside in social circles or communities where nursing is seen as the ideal way to feed infants. They might have more peers and relatives who breastfeed and who can support and encourage them. A study conducted in Saudi Arabia has shown that breastfeeding rates were higher for mothers who had longer maternity paid leave and lower for those who had shorter periods [20]. Another study in Saudi Arabia showed that the mothers reported that body size and shape are obstacles to breastfeeding [19]. Our regression model showed same findings of the factors that obstacle breastfeeding. The multiple logistic regression model in the current study revealed that the motivating factors of breastfeeding are sufficient time to breastfeed, family encouragement, the mother's desire to breastfeed, and having previous information about breastfeeding. A study conducted in China in 2021 has shown that breastfeeding was higher among mothers who received information encouraging breastfeeding. Another study in Hong Kong has found that a mother's intention to breastfeed is linked to several factors, including her the social support, her prior experience with breastfeeding, her older maternal age, and her level of education [21].

Conclusions

Attitude towards breastfeeding among our sample is positive as compared to previous studies, which might due to Saudi efforts to improve breastfeeding to match with Saudi Vision 2030. Also, practice of breastfeeding among our sample was 82% and duration of breastfeeding was 51% of our sample were breastfeeding their babies for less than three months which is below the WHO recommendation for breastfeeding. In addition, Psychiatric disturbances, maintaining the shape and paid leave obstacle breastfeeding while sufficient time to breastfeed, family encouragement, having previous information and mother's personal desire motivate breastfeeding.

Recommendations

We recommend to policy makers to increase the duration of paid leave for working mothers. Also conduct this study on a prob-

ability sample to have a true picture of the real situation in the society so can be generalize the results.

Strengths

The calculated sample size was sufficient, and the study questionnaire was validated using pilot study, experts' opinion, Cronbach alpha test and it was acceptable. The required resources to conduct the research were available as statistical and research methodology experts, library facilities, and the university free Wi-Fi internet.

Limitations

The sample size being attained, it is still not a representative sample of Saudi Arabia's mothers because it is a convenient sample which was used because of the study time limit. As a result, it is recommended to proceed with caution when extrapolating from our findings as we cannot generalize the results and our population should not represent the general population of Saudi mothers.

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