

Mothers' Attitudes toward Breastfeeding and Their Association with Infants' Characteristics

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Abstract: Breastfeeding promotes optimal growth and development for infant and children. So this study aims to assess mother's breastfeeding attitudes and identify their association with infants' characteristics. Descriptive cross-sectional design was used. The study was conducted in breastfeeding clinic at Dr. Soliman Fakeeh Hospital (DSFH) in Jeddah city, Saudi Arabia. A convenient sample of the Saudi mothers (276) who were accepted to participate in the study. The mothers' age was 18 years and above, their infant's age were less than 12 months. Two tools were used to collect data. The first tool: The mother's and infant's demographic characteristics: Mothers' data (age, education level, and husband educational level, occupation status for mothers and their husbands, family income, previous training regarding breastfeeding. Infant's characteristics (gender, birth weight, gestational age, health status, if they admitted to NICU, child order, if the mother planned for pregnancy of this infant and delivery type and using of pacifier). The second tool is the modified Iowa Infant Feeding Attitude Scale (IIFAS) was used to measure mothers' attitudes to breastfeeding. It consists of 21 items with a 5-point Likert scale ranging from 5 (strongly agree) to 1 (strongly disagree). A higher score achieved on IIFAS indicates a more positive attitude toward breastfeeding. The Results showed that: Mothers were more positive attitudes toward breastfeeding (81.39 ± 8.35). There was a significant relationship between mother's attitude with their family income ($P=0.027$), occupation status ($P=0.015$), and previous experiences with breastfeeding ($P=0.043$). While there was no a significant relationship between mother's attitude with their age, education level, marital status, and their husband education and occupation. No significant association between the baby gender, gestational age, and current baby weight admission to NICU, baby order, planning pregnancy and type of delivery and mother's attitude toward breastfeeding. Only one variable was significantly associated with the attitudes toward breastfeeding, this variable was infant health status ($p= 0.008$). The researcher recommend to apply Baby Friendly Hospital Initiative (BFHI) in all hospitals. A future longitudinal study to follow infant's development in the first year; considering influences and factors that affect it alongside.

Keywords: Breastfeeding, Mothers' Attitude, Infants' Characteristics.

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I. Introduction

Breastfeeding is the best method of infants feeding, which increases their chances of survival, and promotes optimal growth and development from birth to 2 years of age¹. It provides all nutrients, vitamins and minerals an infant requirements for growth in the first six months. It continues to provide half or more needs during the last half of the first year and third needs during the second year of life². However, breastfeeding remains a challenge for the mothers, In the Kingdom of Saudi Arabia (KSA), the law is based on the Quran Kareem and the Hadiths, or the sayings of the Prophet Mohammed (PUH). The Quran instructs its followers to breastfeed children for 2 complete years. (Quran Kareem, Soura Al- Baqarah 4:233).

Over the last few decades, there are a lot of scientific studies have shed light on health benefits of breastfeeding for both infants and mothers. These benefits are different related to the physiological, psychosocial and cognitive infant development as well as maternal health. It supports infants' immune systems to protect from chronic conditions such as overweight, obesity and diabetes, cardiovascular diseases and cancer during childhood stage and later in their life^{3,4,5,6,7}. One third of all under five year's children deaths are related to under nutrition. So breastfeeding reduces infant mortality as a result of diarrhea or pneumonia⁶. Its benefits also for the mothers lowers the risk of breast, endometrial and ovarian cancers⁸. Although all these breastfeeding benefits, only about two fifths of infants worldwide are exclusively breastfeeding (EBF) for the first six months of life, and only around two thirds are weaning properly^{6,7}. World Health Organization (WHO)² recommends early initiation of breastfeeding within one hour of life and EBF during the first six months of life for optimal growth, development and health of infants. EBF means that the infant receives only breast milk. No other liquids or solids are given, not even water with the exception of oral rehydration solution, or drops/syrups

of vitamins, minerals or medicines. Unfortunately, only 40% of infants are exclusively breast fed worldwide. So the WHO and UNICEF had launched health prompting programs like the International Code of Marketing of Breast Milk Substitutes (ICMBMS) and BFHI to support breastfeeding practice.⁷

Breastfeeding is a natural act, and learned behavior for mothers. So the mothers require active support for maintain appropriate breastfeeding practices. Factors associated with breastfeeding practices during initiation, exclusiveness and duration such as: mother and infant health characteristics, aspects of feeding practices, mother's knowledge, attitude, practices and social support system, Socio-cultural, economic and environmental factors. Health care providers put these factors in their considerations during planning health promotion programs related to breastfeeding practices. This is consistent with healthy people 2020 goal "to increase the proportion of infants who are breastfed"⁶.

Infants' characteristics are the important factors impact on the mothers' breastfeeding attitude. But, the association between mothers' attitudes and infants' characteristics is still unclear. So it is important to explore the mothers' attitudes towards breastfeeding and to identify the infant characteristics to evaluate which interventions that are needed to promote EBF⁹. Also one study conducted in Jordan by Shosha,¹⁰ recommended more focusing for the mother of preterm infants, unhealthy infants, and who was delivered cesarean section. However, the literature review showed there is a lack of studies in this area in KSA. Therefore this study aims to assess mother's breastfeeding attitudes and identify to their association with infants' characteristics..

Aim of the Study

The aim of this study is to assess mother's breastfeeding attitudes and identify to their association with infants' characteristics.

Research questions:

The study will answer the two questions:

- What are the mother's breastfeeding attitudes?
- Are there any relationship between breastfeeding mothers' attitudes and infants' characteristics?

II. Material And Methods

Study design

This study has a descriptive cross-sectional design, which was used to suit with the nature of this study.

Setting

The study was conducted in breast feeding clinic at DSFH in Jeddah city, KSA. The clinic receives mothers with babies who delivered at DSFH or transferred from other hospitals. The clinic goal is to provide support for mothers to initiate and continue with breastfeeding and supports the family and facilitates a breast feeding follow up with the mothers in hospital and home. Another effort for encouraging breastfeeding practice as BFHI.

Study Duration: June 2017 to December 2017.

Sample

A convenient sample of the Saudi mothers (276) who were accepted to participate in the study. The mothers 'age was 18 years and above, their infant's age were less than 12 months, had no chronic diseases during pregnancy and they able to read and speak Arabic.

Instruments

Two tools were used to collect data.

The first tool: The mother's and infant's demographic characteristics:

Mothers' demographic data: age, education level, and husband educational level, occupation status for mothers and their husbands, family income, previous training regarding breastfeeding.

Infant's characteristics: gender, birth weight, gestational age, health status, if they admitted to NICU, child order, if the mother planned for pregnancy of this infant and delivery type and using of pacifier.

The second tool is the **modified Iowa Infant Feeding Attitude Scale (IIFAS)**, it was used to measure mothers' breastfeeding attitudes. It consists of 21 items with a 5-point Likert scale ranging from 5 (strongly agree) to 1 (strongly disagree). A higher score achieved on IIFAS indicates a more positive attitude toward breastfeeding. IIFAS is a valid and reliable assessment tool for attitudes towards infant feeding and was translated to Arabic, validated and used in some Arabic countries such as Syria, Jordan and Saudi Arabia^{11, 12, 13}. This tool achieved a Cronbach alpha reliability test of $\alpha = 0.6$ when applied in the KSA¹². A higher score achieved on IIFAS indicates a more positive attitude toward breastfeeding. While the first tool was reviewed by a panel of five nursing academics staff for validity.

A **Pilot study** was conducted on 30 of mothers and their infants in order to evaluate the clarity and the applicability of the tools before collecting data. Minor modifications were done accordingly.

Ethical considerations

The study proposal was reviewed and approved by the Institution Review Board (IRB) of DSFH. Verbal consent was obtained from mothers after explaining the aim and process of the study. They were assured that refusal to participate in the study would not affect the care they receive. To keep confidentiality of collected data, it was collected anonymously and codes were used to each questionnaire sheet.

Data Collection:

After verbal consent was abstained from the mothers, the questionnaire distributed to them during their visit to breastfeeding clinic. Then the researchers explained to mothers how to complete all the questionnaire parts. The researchers collected the questionnaire from the mothers at the end of their visit to the clinic, then ensured all parts are completed, a code assigned for each questionnaire before entering the data in the sheet.

Data Analysis

The collected data were analyzed by using Statistical Package for the Social Sciences (SPSS), version 21.0. Both descriptive statistics (e.g., number and percentage) and analytic statistics were used. Correlation and regression analysis were used to assess the association of infant demographic characters with the mothers' attitude toward breast feeding. Chi-squares were used to describe the characteristics of participants and to examine their breastfeeding attitude.

A binary logistic regression (BLR) analysis was done to identify the association between mothers' attitudes and infants' characteristics. The cut point from total score for the modified IIFAS was 71.4 out of 105. So the mother got 71.4 or more score of IIFAS was positive breastfeeding attitude, while who got less than 71.4 was positive formula feeding attitudes. A significant p value of equal or less than 0.05 was considered,

III. Results

Table (1) showed mothers' characteristics, A total of 300 mothers were invited to participate in this study during their visit to the clinic, 276 mothers accepted the invitation (response rate = 92%). Mothers' age ranged from 19 to 42 years. The mean and SD of mothers' age was 29.93 ± 4.68 , about 40% of mothers 'age were ranged from 25 to 30 years. The majority of them was not working (85.5 %), and 55.1% had university education (55.1%). About two third (60, 8%) of mothers had family income of more than 10,000 SR. The most of them (99.6%) were married.

Mothers' characteristics	No (276)	%
Mother age		
- <25y	52	18.8
- 25-30y	110	39.9
- 30-35y	75	27.2
- >35y	39	14.1
	Range :19 – 42 X \pm SD: 29.93 \pm 4.68	
2) Marital status		
- Married	275	99.6%
- Widow	1	0.4%
3) Mother Education Level		
- Not able to read and write	1	0.4%
- Primary education	1	0.4%
- Perp. Education	12	4.3%
- Secondary education	62	22.5%
- University education	166	60.1%
- Postgraduate studies	34	12.3%
4) Husband Education Level		
- Primary education	1	0.4%
- Prep. Education	4	1.4%
- Secondary education	46	16.7%
- University education	152	55.1%
- Postgraduate studies	73	26.4%
5) Are you work?		
- Yes	40	14.5%
- No	236	85.5%
6) Mother Occupation		
- Working in governmental job	18	45%

- Working in private job	19	47.5%
- Work free job at home	3	7.5%

Table (2) showed infants' characteristics, the majority of infants (64 %) were male, while 35 % were female. 74.6% of them were born with a normal birth weight and 25.4% were low birth weight. The majority of infants (81.9 %) were born full term at 37 weeks or more, and 18.1% were premature. 58.0 % of infants were vaginal delivered and 42.0 % were caesarean section delivered. Among those infants, only 4.7% were unhealthy and admitted to NICU with medical problems while the rest (95.3 %) were healthy infants. 81.2% were not the first order child in their families, while only (18.8%) were the first one. Less than half of mother (47.1 %) were planned pregnancy for this infant, while (52.9 %) of pregnancies were not planned. 72.1% of them were not used pacifier for their infants.

Table (2) Infants' Characteristics of Mothers.

Infants' characteristics	No	%
Gender		
- male	177	64.1%
- female	99	35.9%
Current Age:		
- less than 3 months	127	46.0%
- from 3 to 6 months	23	8.3%
- from 6 to 9 months	27	9.8%
- more than 9 months	99	35.9%
Birth weight (gm.)		
- less than 2500 gram	70	25.4%
- more than 2500 gram	206	74.6%
Gestational age		
- less than 37 weeks	50	18.1%
- 37 weeks and more	226	81.9%
Are your infant admitted to NICU?		
- yes	13	4.7%
- no	263	95.3%
Health status: for the baby		
- healthy	263	95.3%
- unhealthy	13	4.7%
Birth order		
- first	52	18.8%
- second	98	35.5%
- third	69	25.0%
- fourth and above	57	20.7%
Are you planned for the pregnancy for this infant?		
- yes	130	47.1%
- no	146	52.9%
Are you followed up with the doctor during pregnancy?		
- yes	273	98.9%
- no	3	1.1%
Type of delivery		
- vaginal delivery	160	58.0%
- cesarean delivery	116	42.0%
Are you introduced a pacifier to your child?		
- yes	77	27.9%
- No	199	72.1%

Table (3). Illustrates breastfeeding initiation and pattern among the mothers, 38.8 % of them were initiated breastfeeding in the first hour of infant's life and 51.1% was in first day. The majority (58, 7%) of them breastfed their infants according to their infants demand.

Table 3: Breastfeeding Initiation and Pattern among the Mothers

Breastfeeding Initiation & Pattern	No	%
Are you feed your baby bottle feeding?		
- yes	203	73.6%
- no	73	26.4%
How many times you give bottle feeding per day?		
- One time	88	43.3%
- Two times	42	20.7%
- Three times	33	16.3%
- More than three times	40	19.7%

Initiation of breastfeeding for your infant?		
- In the first hour of life	107	38.8%
- In the first day of life	141	51.1%
- After three days after birth	22	8.0%
- Others	6	2.2%
Pattern of breastfeeding for your infant based on:		
- Baby demands	162	58.7%
- Schedule every three hours	78	28.3%
- During the day time	2	0.7%
- During the night time	4	1.4%
- Day and night times	30	10.9%

Table 4 shows attitude of the mothers toward breastfeeding assessed by modified IIFAS. Mothers were more positive attitudes toward breastfeeding (81.39 ± 8.35). “Breastfeeding increased mother –infant bonding.” recorded the highest score from the mothers with a mean (SD) value of 4.69 ± .56 followed by “Breast milk is the ideal food for the baby.” was (4.63 ± .62). While, “The nutritional benefits of breast milk last only until the baby is weaned from breast milk.” was lowest score from the mothers (2.19 ± 1.40), followed by “Wet nursing is the better choice if the mother plans to go out to work.” was 2.34 ± 1.12.

Table 4. Mothers' attitudes towards breastfeeding

Attitudes towards breastfeeding among Saudi mothers	strong disagree		disagree		neutral		agree		strong agree		Mean ± SD
	No	%	No	%	No	%	No	%	No	%	
The nutritional benefits of breast milk last only until the baby is weaned from breast milk.	129	46.70 %	58	21.00%	23	8.30%	39	14.10%	27	9.80%	2.19 ± 1.40
Formula feeding is more convenient than breastfeeding.	5	1.80%	6	2.20%	3	1.10%	93	33.70%	169	61.20%	4.50 ± .79
Breastfeeding increased mother –infant bonding.	1	0.40%	2	0.70%	2	0.70%	71	25.70%	200	72.50%	4.69 ± .56
Breast milk is lacking in iron.	4	1.40%	16	5.80%	137	49.60%	74	26.80%	45	16.30%	3.51 ± .88
Formula-fed babies are more likely to be overfed than breast-feed babies.	5	1.80%	21	7.60%	37	13.40%	86	31.20%	127	46.00%	4.12 ± 1.03
Formula feeding is the better choice if the mother plans to go out to work.	10	3.60%	58	21.00%	20	7.20%	97	35.10%	91	33.00%	3.73 ± 1.22
Mothers who formula feed miss one of the great joys of motherhood.	14	5.10%	13	4.70%	14	5.10%	98	35.50%	137	49.60%	4.20 ± 1.08
Women should not breast-feed in public such as restaurants.	22	8.00%	51	18.50%	18	6.50%	134	48.60%	51	18.50%	3.51 ± 1.21
Breast fed babies is healthier than formula-fed babies.	3	1.10%	3	1.10%	10	3.60%	100	36.20%	160	58.00%	4.49 ± .72
Breastfed babies are more likely to be overfed than formula-fed babies.	9	3.30%	12	4.30%	41	14.90%	85	30.80%	129	46.70%	4.13 ± 1.03
Father feel left out if a mother breastfeeds.	5	1.80%	27	9.80%	27	9.80%	127	46.00%	90	32.60%	3.98 ± .99
Breast milk is the ideal food for the baby.	2	0.70%	2	0.70%	3	1.10%	83	30.10%	186	67.40%	4.63 ± .62
Breast milk is more easily digested than formula.	2	0.70%	5	1.80%	17	6.20%	81	29.30%	171	62.00%	4.50 ± .76
Formula is as healthy for infant as breast milk	8	2.90%	13	4.70%	11	4.00%	123	44.70%	120	43.60%	4.21 ± .94
Breast-feeding is more convenient than formula feeding.	4	1.40%	8	2.90%	9	3.30%	93	33.70%	162	58.70%	4.45 ± .81
Breast milk less expensive than formula.	9	3.30%	4	1.40%	15	5.40%	98	35.50%	150	54.30%	4.36 ± .91
Wet nursing is the better choice if the mother plans to go out to work.	73	26.40 %	90	32.60%	72	26.10%	28	10.10%	13	4.70%	2.34 ± 1.12

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Breastfeeding for 2 years is ideal for the baby.	5	1.80%	11	4.00%	20	7.20%	100	36.20%	140	50.70%	4.30 ± .90
Mixed feeding (bottle-and breast feeding) is more practical for mothers today.	16	5.80%	82	29.70%	28	10.10%	104	37.70%	46	16.70%	3.30 ± 1.22
Wet nursing is as healthy for an infant as breast milk.	44	15.90%	79	28.60%	88	31.90%	53	19.20%	12	4.30%	2.67 ± 1.09
Wet nursing is not an option for mother today.	17	6.20%	23	8.30%	62	22.50%	131	47.50%	43	15.60%	3.58 ± 1.05

Figure (1) revealed that 88, 8% of mothers have positive attitudes toward breastfeeding and only 11.2% have a positive attitude toward the bottle feeding.

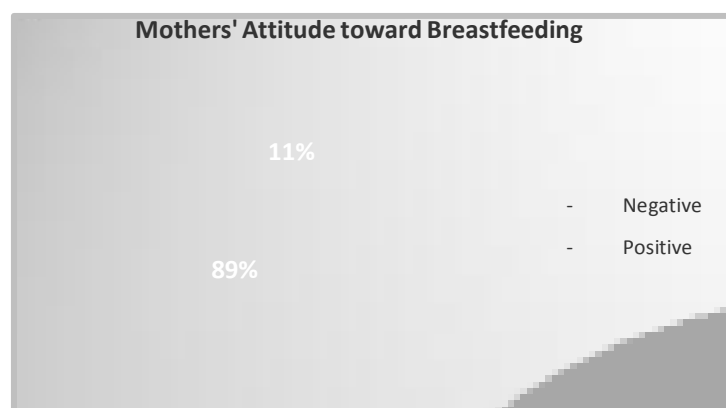


Table 5 presents the association between mothers' attitude toward breastfeeding and their characteristics. There was a significant relationship between mother's attitude with their family income (P=0.027*), occupation status (P=0.015*), and previous experiences with breastfeeding (P=0.043*). While there was no significant relationship between mother's attitude with their age, education level, marital status, and their husband education and occupation.

Table 5. Association between Mothers' Attitude toward Breastfeeding and their Characteristics.

Mothers' Characteristics	Total gp2				χ ²	P
	Negative Attitude		Positive Attitude			
	No	%	No	%		
Mother age						
- <25y	9	29.0%	43	17.6%	3.798	0.284
- 25-30y	8	25.8%	102	41.6%		
- 30-35y	9	29.0%	66	26.9%		
- >35y	5	16.1%	34	13.9%		
Marital status						
- married	31	100.0%	244	99.6%	0.127	0.722
- widow	0	0.0%	1	0.4%		
Education level						
- not able to read and write	0	0.0%	1	0.4%	4.044	0.543
- primary education	0	0.0%	1	0.4%		
- perp. education	0	0.0%	12	4.9%		
- secondary education	6	19.4%	56	22.9%		
- university education	23	74.2%	143	58.4%		
- postgraduate studies	2	6.5%	32	13.1%		
Husband Education level						
- Primary education	0	0.0%	1	0.4%	4.577	0.334
- Prep. education	0	0.0%	4	1.6%		
- Secondary education	9	29.0%	37	15.1%		
- University education	16	51.6%	136	55.5%		

- Postgraduate studies	6	19.4%	67	27.3%		
Are you work (occupation status)?						
- Yes	9	29.0%	31	12.7%	5.957	0.015*
- No	22	71.0%	214	87.3%		
Are your husband work?						
- Yes	30	96.8%	242	98.8%	0.772	0.380
- No	1	3.2%	3	1.2%		
Family income last year (SR)						
- Less than 5000 SR	2	6.5%	16	6.5%	9.207	0.027*
- From 5000 to 10000 SR	17	54.8%	73	29.8%		
- From 10000 to 15000 SR	8	25.8%	74	30.2%		
- More than 15000 SR	4	12.9%	82	33.5%		
Has you breastfed at least one child before?						
- Yes	21	67.7%	203	82.9%	4.112	0.043*
- No	10	32.3%	42	17.1%		
Are you attend breastfeeding health education						
- Yes	8	25.8%	82	33.5%	0.735	0.391
- No	23	74.2%	163	66.5%		

*Significant (p< 0.05)

Table 6 identifies the association between mothers' attitude toward breastfeeding and their characteristics. The findings showed no significant association between the baby gender, gestational age, and current baby weight admission to NICU, baby order, planning pregnancy and type of delivery and mother's attitude toward breastfeeding. Only one variable was significantly associated with the attitudes toward breastfeeding, this variable was infant health status (p= 0.008).

Table 6. Association between Mothers' Attitude toward Breastfeeding and Infant Characteristics (Results of BLR model)

	B	S.E.	Wald	Sig.	Exp (B)	95.0% C.I. for EXP(B)	
Step 1(a)						Lower	Upper
- baby_gender(1)	-.400	.434	.847	.357	.671	.286	1.571
- Birth_baby_aby_age			3.930	.269			
- Birth_baby_aby_age(1)	-.947	.500	3.580	.058	.388	.146	1.035
- Birth_baby_aby_age(2)	-.136	.858	.025	.874	.873	.162	4.688
- Birth_baby_aby_age(3)	-.327	.854	.147	.701	.721	.135	3.844
- current_baby_weight(1)	.203	.493	1.169	.681	1.224	.466	3.215
- Gastetional_age(1)	-.536	.526	1.039	.308	.585	.209	1.640
- if_baby_admitted_NICU(1)	1.241	1.154	1.157	.282	3.459	.360	33.197
- health_baby_status(1)	1.672	.628	7.084	.008	5.322	1.554	18.229
- baby_order			2.817	.421			
- baby_order(1)	-.847	.617	1.885	.170	.429	.128	1.437
- baby_order(2)	-.196	.598	.107	.743	.822	.255	2.654
- baby_order(3)	.032	.643	.002	.961	1.032	.293	3.641
- are_planning_pregnancy(1)	.374	.428	.765	.382	1.454	.629	3.363
- follow_up(1)	1.492	.852	3.065	.080	4.445	.837	23.620
- Delivery_type(1)	.139	.409	.116	.733	1.150	.516	2.560
- pare_use_pacifier(1)	-.483	.470	1.060	.303	.617	.246	1.548

IV. Discussion

Mother's attitude toward breastfeeding is a vital factor to promote breastfeeding process. So, the aim of this study is to assess mother's breastfeeding attitudes and identify to their association with infants' characteristics. The findings of this study showed the most of mothers have positive breastfeeding attitudes, but the minority of them have positive attitude toward the bottle feeding. This supported by the previous many studies concluded the mothers have favorable and positive breastfeeding attitudes^{11, 10, 15, 16}. Favorable mother's attitude towards breastfeeding is necessary factor to initiate and maintain breast feeding practice^{17, 18}. Moreover, Saied, et al.¹⁹ found the majority of mothers have a neutral breastfeeding attitude, this was similar to findings of Al-Madani¹² and Vijayalakshmi, et al,²⁰. This may be due to religious beliefs and the most of the mothers were delivered in DSFH and this hospital one of the BFHI in Saudi Arabia.

The mothers' characteristics, the mean age of mothers was about thirty years old. The majority of them were not employed, and more than half of them had university education.. The most of them were married. Similarly Alyousefi, et al,²¹ findings showed a third of the mother's age were younger than thirty years old,

about half of them had university education and one third were employed. In the current study, infants' characteristics, approximately half of infant's age less than three months and majority of them were male. The majority of them were born with a normal birth weight and full term, and the majority of them were delivered normally. The minority of infant were unhealthy and admitted to NICU with medical problems and almost of them were healthy. The majority of them were not the first order infant in their families. About half of the mothers were planned for pregnancy and the majority of them were not used pacifier. These results supported with the same infant characters in two studies, one in Saudi Arabia and other in Jordan. Alyousefi, et al,²¹ and Shosha¹⁰.

This study showed that the most of mothers were started breastfeeding during first 24 hours of their infant's life. This results is close to Alyousefi, et al,²¹ and others studies conducted in Saudi Arabia, they found the most of the mothers initiated breastfeeding on the first day after birth in Al-Hassa Amin, et al²², Riyadh Al-Jassir²³ and in Jeddah Shawky²⁴. The majority of the mother's breastfed their infants upon demand in agreement with Alyousefi, et al,²¹ and Alshebly and Sobaih²⁵, Alwejaie, et al²⁶ and El Mouzan, et al²⁷ they found that there was no concern in the initiation of breastfeeding in all the studied mothers. So the Saudi mothers have willing to breastfeed their infants. This may be encouraging the Saudi and other Arabic countries to implement health promotion programs to support early initiation and EBF practice in various areas in hospital such as: antenatal care, perinatal follow up, well-baby clinics and breastfeeding clinics to educate mothers²⁰. This may be supported to apply baby friendly hospital programs in all hospitals.

There was a significant relationship between mother's attitude with their family income, mother's occupational status, and mothers with breastfeeding previous experiences. While there were no a significant relationship between mother's attitudes with their age, education level, marital status, and husband's education and occupation. Other studies showed some of these factors were significant association with EBF practice. As, in Al-Hassa, older age, being a housewife and previous experiences were positively associated with EBF²², while, mother's occupation status was a significant association with EBF in study conducted In Lebanon¹⁴. Girish and Gandhimathi¹⁵ found the significant association between mother's attitude and educational status, occupation and place of residence. While Saied, et al¹⁹ showed that mother's attitude positively associated with their age, showing older mothers are a more positive breastfeeding attitude. Bień, et al²⁸, presented the mother's age, delivery mode, mother's and husband's level of educational were significant association with mother's breastfeeding knowledge. Contrary with the study conducted in Indian by Vijayalakshmi, et al,²⁰ presented mothers' age and employment status were not statistically significant difference with their attitude scores. Older mothers and housewife had more positive attitudes toward breastfeeding, may be attributed to they have time to continue breastfeeding than employed mothers. There was a significant relationship between family income and positive attitude of the mothers to breastfeeding. This congruent with Alshebl and Sobaih²⁵ found the medium and high income groups were significantly more compliant than the lower income group.

There was no significant relationship between mothers attending breastfeeding health education training and their breastfeeding attitude. This disagreed with the study conducted in Indian by Ishak, et al²⁹ found mothers who had a university education level and attended educational training about breastfeeding, were a more positive breastfeeding attitude. This supported by Alzaheb³⁰ who found that mother's employment concerns and inadequacy breast milk were the main reasons for EBF low rate among female school teachers in Abha, KSA. Our study and Alzaheb³⁰ presented low rate of attending breastfeeding health education should be considered by health care providers to improve child health. Many hospitals allow bottle feeding to infants should be managed through implementing BFHI.

There was a significant relationship between previous experience with breastfeeding and the positive attitude of the mothers to breastfeeding for the new infants. Similarly Alyousefi, et al,²¹ presented that there was a significant relationship between previous experiences with EBF. Arafat, et al³¹ found that the statistically significant factors influencing mother's breastfeeding practice were their age, level of education, occupation, and monthly income.

The study focused to determine which infant characteristics are significantly correlated with mother's breastfeeding attitudes. The findings showed no significant relationship between the delivery mode and breastfeeding attitude mother. Similarly Alyousefi, et al,²¹ Al-Ghwass and Ahmed³⁴ did not find a significant correlation between delivery type and EBF. This disagreed with Shosha,¹⁰ Ishak, et al²⁹ and Al-Sahab et al³² they found mothers delivered vaginal were associated positively with their breastfeeding attitudes and they continue EBF compared to cesarean delivery.

Regarding gestational age another infant characters, the findings presented no association between gestational age and mothers' attitude to breastfeeding. Similarly Alyousefi, et al,²¹ did not find a significant association between infants' gestational age and maintain EBF. While Shosha¹⁰ and Tan³³ found full term infant was positively related with mothers attitudes and EBF compared to mothers with preterm infants. The result of this study was similar with the findings of Shosha,¹⁰ and Al-Ghwass and Ahmed³⁴, there was no relationship between mother's attitude to breastfeeding and infant birth weight. Health status of infants was

significantly associated with mother's positive breastfeeding attitudes. While there was no relationship between the mother's attitude and the infants did not admit to NICU. Similarly Alyousefi, et al, 21 did not find a significant correlation between infant complications after delivery, infant hospital admission after delivery and exclusive breastfeed. And Shosha,¹⁰ found healthy infant's status as well as infants did not admit to the NICU associated with their mothers' positive breastfeeding attitudes. Also supported with Al-Sahab et al.³² who found that mothers were likely to practice EBF were associated with infants admitted to the NICU.

Regarding to the infant gender was no significant relationship with mothers breastfeeding attitudes supported by Shosha¹⁰, and Alyousefi, et al,²¹ did not find a significant correlation between infant sex and exclusive breastfeed. Contrary to Al-Ghwass and Ahmed³⁴ found the mother maintain EBF was correlated with infant's gender. In this study infant birth order was not significantly correlated with mothers' attitudes toward breastfeeding. Similarly Alyousefi, et al,²⁰ and Al-Ghwass and Ahmed³⁴ did not find a significant correlation between order of the child and EBF. Disagreed with Tan et al.³² presented EBF practice was more common between mothers with more children.

Regarding planned pregnancy, no significant association between mothers who planned for pregnancy with their attitude, supported with Shosha,¹⁰. But disagreed with Taylor and Cabral³⁵ found the mothers planned for pregnancy were more intend to initiate and continue breastfeeding. This may be related to cultural issues in Arab countries, most of the mothers may be did not know the importance to put a plan to next pregnancy.

The findings of this study of Saudi mothers supported the finding of Shosha,¹⁰ in Jordanian mothers, both of them add to the significance of mother's breastfeeding attitude and their association with infants' characteristics in Arab countries. Consequently, the nurses have an important role to identify infant's characters and mother's attitude, then plan proper interventions to improve breastfeeding practices.

Limitations of the Study

The participants were only Saudi mothers who live in Jeddah city. So this study findings limit to be generalized in all Saudi mothers, because of non-studied geographic and socioeconomic characters.

V. Conclusion

In conclusion, our results concluded that the majority of the Saudi mothers had positive attitude towards breastfeeding their infants. There are no significant association between mother's attitude toward breastfeeding and the infant characters include: the infant's gender, gestational age, and current infant's weight, admission to NICU, baby's order, planning pregnancy and type of delivery. While infant health status was statistically significant associated with mother's attitudes toward breastfeeding.

Recommendations

Based on the results of the present study, the researchers suggest the need for further longitudinal studies to follow infant's development in the first year; considering influences and factors that affect it alongside. Apply BFHI programs in all hospitals in Arabic countries. Develop health education training during pregnancy period. Enhance family support for breastfeed mothers. Initiate structured breast-feeding education and awareness programs, as well as policies and procedures in many health care facilities.

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