

Factors Associated with Not Continuing Initiated Breastfeeding among Saudi Females in Abha

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Abstract

Background: Despite the health, social and economic benefits of breastfeeding (BF) for both mother and child are well established and accepted throughout the world, the prevalence of breast feeding worldwide has not met the optimal target of WHO recommendation.

Objectives: To assess the prevalence of breastfeeding and determinants of not continuing initiated breast feeding among Saudi females.

Methods: A descriptive cross-sectional study was conducted in the primary healthcare centers' clinics and outpatient pediatric clinics of Abha maternity and children hospital, Saudi Arabia. It included a random sample of Saudi mothers with children aged up to two years of life. A validated questionnaire was utilized for data collection. It included three main parts: socio demographic data, the medical and health condition for the mother and current child and the attitudes of mother toward BF, BF pattern for the last child, and reasons for discontinuity of BF.

Results: The study included 276 mothers. The majority of them (88.1%) were aged between 20 and 39 years and were Saudi nationals (90.2%). History of receiving any health education about breast feeding was observed among the majority of the participants (91.7%). The most frequently reported source of health education was self-education through reading (39.1%), followed by doctors (30.4%),

nurses (29.6%) and relatives/friends (27.7%). Overall, slightly more than half of them (51.1%) expressed a positive attitude towards breast feeding; particularly non-Saudi mothers (adjusted odds ratio "aOR":0.44, and those whose main source of information was nurses or self-education (aOR: 0.27 and 0.12, respectively). The majority of the participating women (86.2%) initiated breastfeeding for their newborns. Among them, 80.7% discontinued BF; particularly Saudi mothers (aOR: 0.08), mothers with higher education (aOR: 5.05-10.21), governmental employees (aOR: 3.51), those living in a separate house (aOR: 2.21), delivered by cesarean section (aOR: 11.14), reported NICU admission of their newborns (aOR: 9.13) and those who expressed a negative attitude towards BF (aOR: 0.25). The commonest reported causes of discontinuation of BF among the participants were thinking that breast milk is not enough (39.9%), going back to work (38.5%) and thinking that baby will be demanding on breastfeeding (13.3%).

Conclusion: Initiation of breastfeeding was very highly practiced by mothers in Abha city, Saudi Arabia. However, its discontinuation before the recommended time is also a highly reported practice.

Key words: Breastfeeding, initiation, discontinuation, Saudi Arabia.

Introduction

Breastfeeding (BF) is the process in which the mother can feed her newborn or infant, either directly or using pumping methods, naturally with the milk produced from her breast. Breastfeeding is essential and it is one of the most effective ways to ensure child health and survival.

The health, social and economic benefits of breastfeeding, for both mother and child, are well established and accepted throughout the world.

On the base of this evidence, the World Health Organization (WHO) and United Nations International Children's Emergency Fund (UNICEF) recommend initiating breastfeeding within the first hour of birth and infants be exclusively breastfed for the first 6 months of life, meaning no other foods or liquids are provided, including water (5).

Yet, the prevalence of breast feeding worldwide has not met the optimal target of WHO recommendations. Globally about 38% of babies are exclusively breastfed during their first year of life (9). The prevalence of Middle Eastern newborns received breastfeeding initiated within an hour of birth is 34.3%. In Saudi Arabia the percentage of breastfeeding initiation on the first day of delivery is 94.4% (11).

Despite the high rate of breastfeeding initiation, the rate of exclusive breastfeeding for the first six months of the infants' life was found to be only 13.7%, which is very low based on the World Health Organization (WHO) recommendation for infants to be exclusively breastfed for six months, followed by the introduction of complementary food (12).

In the WHO country profile for Saudi Arabia there is no data about BF types and durations or their determinants because no recent or sufficient data are locally available, (13) although many studies from different cities in Saudi Arabia are done about multiple aspects of breastfeeding. Among those studies none of them were held to study the determinants of discontinuing initiated BF. There was a study done in Riyadh city to assess the determinants of the early initiation of BF in KSA (14). In contrast, another study was done in Mecca region to assess the factors associated with not breastfeeding and delaying the early initiation of BF, (15) whereas there were two studies done in Abha city to assess breastfeeding knowledge, attitude and practice and identify factors that may affect breastfeeding practice in the study population (12, 16). Therefore, the objective of our study is to provide updates about the possible risk factors related to not continuing initiated BF for the complete 2 years among Saudi females in Abha city.

Methodology

A descriptive cross-sectional study was used targeting all mothers with children aged up to two years of life in Abha city, Saudi Arabia. All those mothers were invited to participate in this survey using a validated questionnaire. The questionnaire form was developed and constructed after intensive literature review and expert's consultation.

The study questionnaire was reviewed using a panel of five experts (3 family medicine consultants and 2 pediatric consultants) for content validity. The study questionnaire was translated to Arabic language then tested on 10 Saudi mothers from the target population using a pilot study. After obtaining permission from the Institutional ethics committee, data collection started. A total of 300 questionnaire papers were distributed to the target population mothers in different PHCC and pediatric outpatient clinics then collected during the period from November 2020 to July 2021. Exactly 276 respondents completed the study questionnaire with a response rate of 92%. The study questionnaire included three main parts: socio-demographic data, the medical and health condition of the mother and current child and the attitudes of the mother toward BF, BF pattern for the last child, and reasons for discontinuity of BF. The response of the mothers to attitude statements towards BF were scored in the way that the higher the score, the more positive the attitude towards BF. Thus, the score of some statements was reversed. Total score and its percentage were computed for each participant and the median value was estimated (it was 67.27%). Those who scored below the median value were treated as having a "negative attitude" whereas those who scored at median value or above were treated as having a "positive attitude".

Data analysis

The data were collected, reviewed and edited, and checked for completeness before feeding into Statistical Package for Social Science (SPSS) version 26. All statistical analyses were done using two tailed tests and alpha error of 0.05. The graphs were constructed using Microsoft Excel software. Descriptive statistics were used by using means, standard deviations and ranges for scale variables while frequency distributions were used for qualitative variables. Univariate analysis using chi-square test was done to identify the relation between attitude towards BF and breast-feeding status (continuing or not) with different factors. Multivariate logistic regression analysis was performed to control for the confounding effect and results were expressed as adjusted odds ratio (AOR) and 95% confidence interval (CI).

Results

The study included 276 mothers of children aged up to 2 years of life. Their sociodemographic characteristics are presented in Table 1. The majority of them (88.1%) were aged between 20 and 39 years and were Saudi nationals (90.2%). Approximately half of them (50.7%) were Bachelor holders and 51.4% were housewives. Regarding the father's information, 53.7% were Bachelor holders and 50.5% were governmental employees. The family income ranged between 5000 and 10000 SR/month among 47.9% of the women whereas it exceeded 10000 SR/month among 42% of them. Most of them (71.4%) live in separate houses with their husbands and 48.2% have 2-3 children. Age of the youngest child ranged between >6 months and 2 years in 64.5% of women. Most of the women (73.9%) delivered the last child through spontaneous vaginal delivery.

Table 1: Sociodemographic characteristics of the participants (n=276)

	Frequency	Percentage
Age (years)		
<20	12	4.3
20-29	123	44.6
30-39	120	43.5
≥40	21	7.6
Nationality		
Saudi	249	90.2
Non-Saudi	27	9.8
Mother`s education		
Primary	19	6.9
Secondary/Diploma	107	38.8
Bachelor degree	140	50.7
Higher education	10	3.6
Mother`s occupation		
House wife	142	51.4
Governmental	113	41.0
Private/business	21	7.6
Father`s education		
Primary	10	3.6
Secondary/Military institute	105	38.0
Bachelor degree	148	53.7
Higher education	13	4.7
Father`s occupation		
Governmental	142	51.5
Private	62	22.5
Military	68	24.6
Retired	4	1.4
Monthly income (Saudi Riyals)		
<5000	28	10.1
5000-10000	132	47.9
>10000	116	42.0
Residence		
With own or husband`s family	79	28.6
Separate house	197	71.4
Number of children		
One	82	29.7
2-3	133	48.2
>3	61	22.1
Age of youngest child		
≤ 6 months	98	35.5
> 6 months – 2 years	178	64.5
Mode of delivery of last child		
Spontaneous vaginal delivery	204	73.9
Cesarean section	72	26.1

Health education: History of receiving any health education about breast feeding was observed among the majority of the participants (91.7%) as displayed in Figure 1. The most frequently reported source of health education was self-education through reading (39.1%), followed by doctors (30.4%), nurses (29.6%) and relatives/friends (27.7%) as shown in Figure 2.

Figure 1: History of receiving any health education about breast feeding among the participants

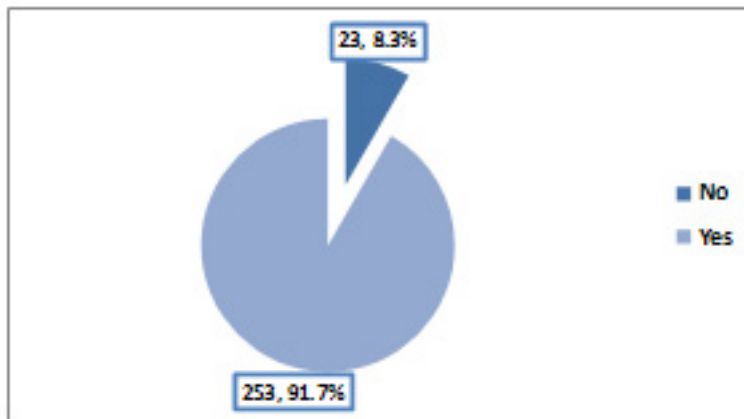
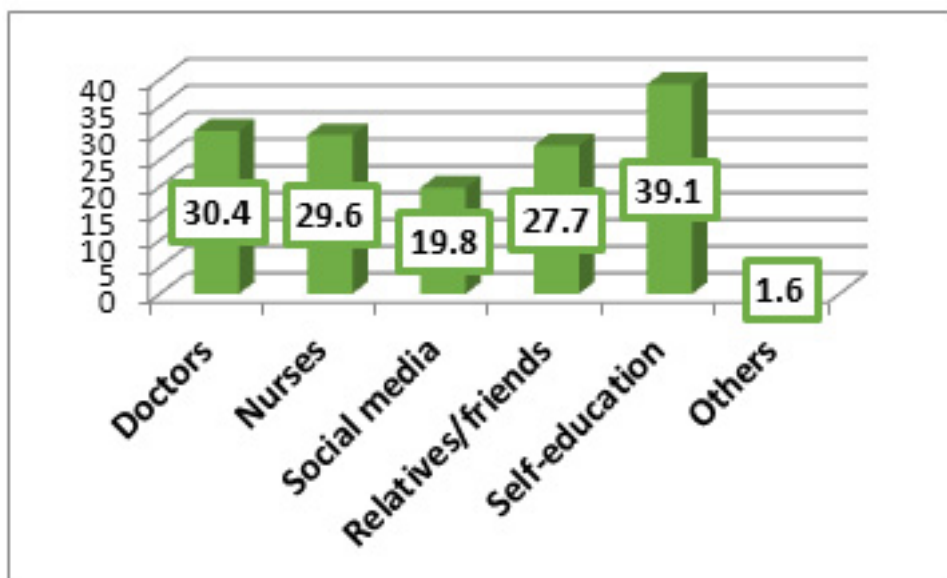


Figure 2: Source of health education about breast feeding among the participants (n=253)



Medical History: history of chronic diseases that did not contraindicate BF was reported among 7.2% of mothers. None of the participants reported history of psychiatric illness. History of taking any medications (including oral contraceptives) was mentioned by 26.8% of the participants. History of prematurity of the last child was reported by 6.9% of the participants. History of neonatal intensive care unit admission of the last child was reported by 8.3% of the participants. History of health problems of the last child was reported among four mothers (1.4%).

Smoking history: Only one mother reported history of smoking, representing 0.4% of the participants.

Attitudes of mothers towards breastfeeding: From Table 3, it is obvious that 72.1% of the participants either agreed or strongly agreed that healthcare workers encourage breastfeeding; 71.9% of them either agreed or strongly agreed that breastfeeding helps in weight loss and 69.9% either agreed or strongly agreed that breastfeeding is easier than artificial feeding. On the other hand, 61.9% of them either disagreed or strongly disagreed that breastfeeding has a negative effect on marital relationship and 60.4% either disagreed or strongly disagreed that work places offer suitable private places for breastfeeding.

Overall, slightly more than half of them (51.1%) expressed a positive attitude towards breast feeding as shown in Figure 3.

Non-Saudi mothers expressed a more positive attitude towards BF compared to Saudis (70.4% vs. 49%), $p=0.035$. Mothers delivered by spontaneous vaginal delivery had a more positive attitude towards BF compared to those delivered by cesarean section (56.4% vs. 36.1%), $p=0.003$. Source of information about BF significantly affected the attitude of mothers towards BS; the highest rate of positive attitude was observed among mothers who got their information about BF through self-education (76.4%) while the lowest rate was observed among those who got their information from social media (22.7%), $p<0.001$ (Table 3).

Multivariate logistic regression analysis revealed that compared to Saudi mothers, non-Saudis were less likely to have a negative attitude towards BF (adjusted odds ratio "aOR":0.44, 95% confidence interval "CI": 0.17-0.93, $p=0.048$). Considering doctors as the main source of information about BF as a reference category, mothers whose main source of information was nurses or self-education were less likely to have a negative attitude towards BF (aOR: 0.27, 95% CI: 0.10-0.74, $p=0.011$ and aOR: 0.12, 95% CI: 0.06-0.37, $p<0.001$; respectively). Mode of delivery of the last child was not significantly associated with mothers' attitude towards BF.

Figure 3: Overall attitude of the participants towards breastfeeding

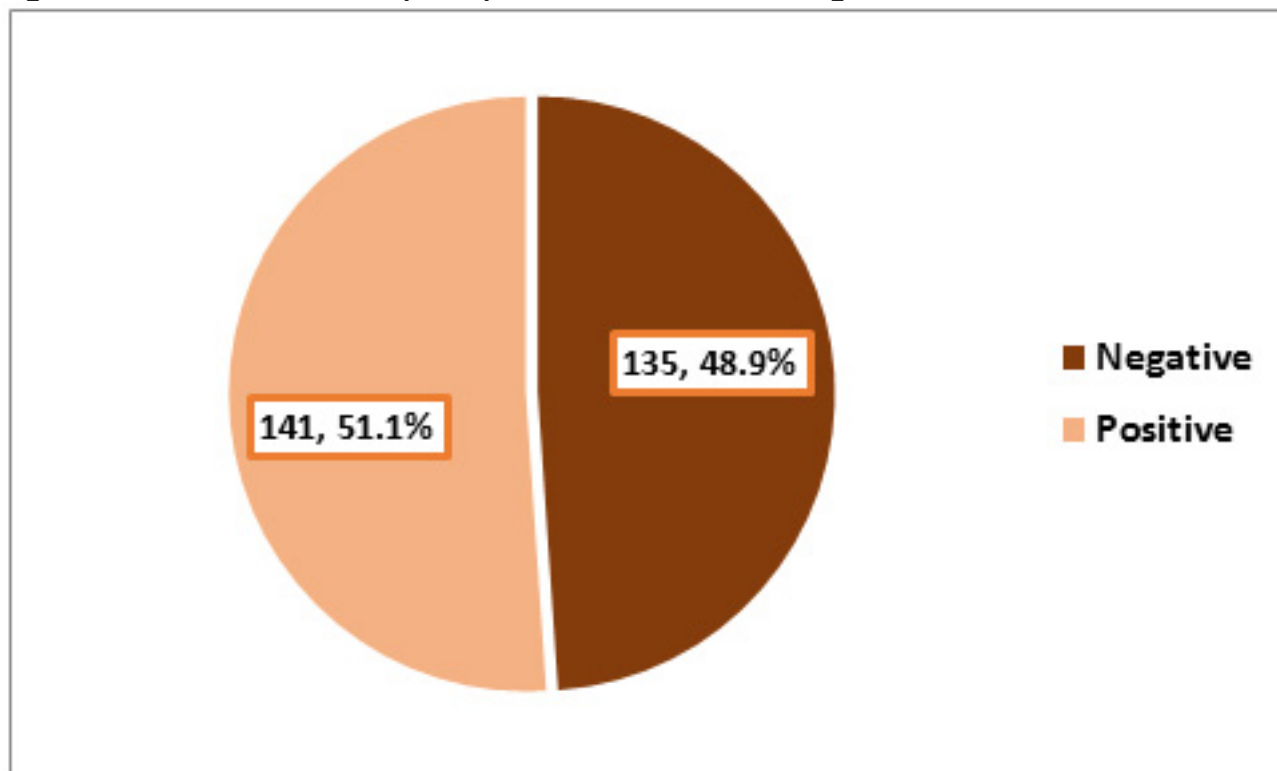


Table 2: Attitude of the participants towards breastfeeding

	1 N (%)	2 N (%)	3 N (%)	4 N (%)	5 N (%)
Breastfeeding is easier than artificial feeding	8 (2.9)	28 (10.1)	50 (18.1)	83 (30.1)	107 (38.8)
It is difficult for breast feeder to take care of her family	64 (23.2)	79 (28.6)	66 (23.9)	53 (19.2)	14 (5.1)
Breastfeeding has negative effect on marital relationship	116 (42.0)	55 (19.9)	61 (22.1)	35 (12.7)	9 (3.3)
Breastfeeding reduces family expenses	28 (10.1)	37 (13.4)	71 (25.8)	89 (32.2)	51 (18.5)
Artificial feeding preserves woman's breast shape	64 (23.2)	32 (11.6)	94 (34.1)	50 (18.1)	36 (13.0)
Breastfeeding helps in weight loss of the mother.	20 (7.2)	18 (6.5)	39 (14.1)	100 (36.3)	99 (35.9)
The community prefers breastfeeding over artificial feeding	7 (2.5)	32 (11.6)	105 (38.1)	58 (21.0)	74 (26.8)
Healthcare workers encourage breastfeeding	8 (2.9)	28 (10.1)	41 (14.9)	78 (28.3)	121 (43.8)
A vacation for 3 months is enough for successful breastfeeding	72 (26.1)	40 (14.5)	73 (26.5)	46 (16.7)	45 (16.3)
Work places offer suitable private places for breastfeeding	129 (46.6)	38 (13.8)	27 (20.7)	25 (9.1)	27 (9.8)
Breast milk is insufficient for the child	42 (15.2)	29 (10.5)	80 (29.0)	77 (27.9)	48 (17.4)

1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree.

Table 3: Factors associated with attitude of the participants towards breastfeeding

	Attitude towards breastfeeding		p-value ^a
	Negative N=135 N (%)	Positive N=(%)141 N	
Age (years) <20 (n=12) 20-29 (n=123) 30-39 (n=120) ≥40 (n=21)	7 (58.3) 64 (52.0) 57 (47.5) 7 (33.3)	5(41.7) 59 (48.0) 63 (52.5) 14 (66.7)	0.385
Nationality Saudi (n=249) Non-Saudi (n=27)	127 (51.0) 8 (29.6)	122 (49.0) 19 (70.4)	0.035
Mother`s education Primary (n=19) Secondary/Diploma (n=107) Bachelor degree (n=140) Higher education (n=10)	9 (47.4) 51 (47.7) 68 (48.6) 7 (70.0)	10 (52.6) 56 (52.3) 72 (51.4) 3 (30.0)	0.600
Mother`s occupation House wife (n=142) Governmental (n=113) Private/business (n=21)	70 (49.3) 52 (46.0) 13 (61.9)	72 ((50.7) 61 (54.0) 8 (38.1)	0.405
Father`s education Primary (n=10) Secondary/Military institute (n=105) Bachelor degree (n=148) Higher education (n=13)	6 (60.0) 57 (54.3) 64 (43.2) 8 (61.5)	4 (40.0) 48 (45.7) 84 (56.8) 5(38.5)	0.218
Father`s occupation Governmental (n=142) Private (n=62) Military (n=68) Retired (n=4)	68 (47.9) 31 (50.0) 32 (47.1) 4 (100)	74 (52.1) 31 (50.0) 36 (52.9) 0 (0.0)	0.225
Monthly income (Saudi Riyals) <5000 (n=28) 5000-10000 (n=132) >10000 (n=116)	15 (53.6) 67 (50.8) 53 (45.7)	13 (46.4) 65 (49.2) 63 (54.3)	0.636
Residence With own or husband`s family (n=79) Separate house (n=197)	32 (40.5) 103 (52.3)	47 (59.5) 94 (47.7)	0.077
Number of children One (n=82) 2-3 (n=133) >3 (n=61)	39 (47.6) 63 (47.4) 33 (54.1)	43 (52.4) 70 (52.6) 28 (45.9)	0.656
Age of youngest child ≤ 6 months (n=98) > 6 months – 2 years (n=178)	42 (42.9) 93 (52.2)	56 (57.1) 85 (47.8)	0.135
Mode of delivery of last child Spontaneous vaginal delivery (n=204) Cesarean section (n=72)	89 (43.6) 46 (63.9)	115 (56.4) 26 (36.1)	0.003
Having health education about BF No (n=23) Yes (n=253)	11 (47.8) 124 (49.0)	12 (52.2) 129 (51.0)	0.913

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Table 3: Factors associated with attitude of the participants towards breastfeeding (continued)

If yes, source of information about BF (n=253)			
Doctor (n=35)	25 (71.4)	10 (28.6)	
Nurse (n=34)	14 (41.2)	20 (58.8)	
Social media (n=22)	17 (77.3)	5 (22.7)	
Relatives/friends (n=18)	9 (50.0)	9 (50.0)	
Self-education (n=55)	13 (23.6)	42 (76.4)	
Two sources (n=61)	33 (54.1)	28 (45.9)	
>two sources (n=28)	14 (50.0)	14 (50.0)	<0.001
Chronic diseases			
No (n=256)	129 (50.4)	127 (49.6)	
Yes (n=20)	6 (30.0)	14 (70.0)	0.079
Taking any medications			
No (n=202)	103 (51.0)	99 (49.0)	
Yes (n=74)	32 (43.2)	42 (56.8)	0.254
Prematurity of the last child			
No (n=257)	128 (49.8)	129 (50.2)	
Yes (n=19)	7 (36.8)	12 (63.2)	0.275
NICU admission of the last child			
No (n=253)	123 (48.6)	130 (51.4)	
Yes (n=23)	12 (52.2)	11 (47.8)	0.744
Health problems of the last child			
No (n=272)	135 (49.6)	137 (50.4)	
Yes (n=4)	0 (0.0)	4 (100)	0.067 [†]

*Chi-square test

†Fischer Exact test

Table 4: Predictors of negative attitude towards BF^a Multivariate logistic regression analysis

	Adjusted odds ratio	95% confidence interval	P-value
Nationality			
Saudi ^a	1.0		
Non-Saudi	0.44	0.17-0.93	0.048
Source of information about BF			
Doctor ^a	1.0		
Nurse	0.27	0.10-0.74	0.011
Social media	1.19	0.34-4.18	0.784
Relatives/friends	0.35	0.11-1.16	0.086
Self-education	0.12	0.06-0.37	<0.001
Two sources	0.43	0.17-1.06	0.067
> two sources	0.39	0.13-1.13	0.082

a: Reference category

Mode of delivery of the last child was not significant (removed from the final model)

Practice of breastfeeding: It is evident that the majority of the participating women (86.2%) initiated breastfeeding for their newborns.

- Use of a pacifier by the current child was reported by 38.4% of mothers.
- More than half (52.5%) of the mothers started BF after 24 hours of delivery. Regarding the type of feeding of the current child; exclusive breast feeding was mentioned by 16.7% of the participants, whereas artificial feeding was mentioned by 42% of them. Among mothers who initiated breastfeeding (n=238), 192 (80.7%) discontinued BF (Table 5).

Table 5: Details of history of breast feeding of the last child among the participants who initiated breastfeeding (n=238)

	Frequency	Percentage
When did you start BF?		
Within 24 hours of delivery	113	47.5
After 24 hours of delivery	125	52.5
What type of feeding is your current child on?		
Exclusive BF	46	16.7
Artificial formula	116	42.0
Mixed	113	40.9
Other	1	0.4
Discontinuation of breast feeding (n=238)		
Yes	192	80.7
No	46	19.3

Factors associated with discontinuation of breastfeeding

Table 6 demonstrates that Saudi mothers were more likely to discontinue BF compared to non-Saudis (85.3% vs. 44.4%), $p < 0.001$. All higher educated mothers compared to only 37.5% of primary school educated reported discontinuation of BF, $p < 0.001$. The majority of governmental employees (93.5%) compared to 66.7% of private employees/business women reported discontinuation of BF, $p < 0.001$. The majority of mothers whose husbands are governmental employees or in the military (84.7%) compared to 66.7% of those whose husbands work in the private sector discontinued BF, $p = 0.030$. The majority of mothers (86%) whose income exceeded 10000 SR/month compared to 45% of those whose income was <5000 SR/month discontinued BF, $p < 0.001$. Women living in separate house were more likely to discontinue BF compared to those living with their own or husbands' family (86.5% vs. 65.7%), $p < 0.001$. The majority of women who have 2-3 children (87.5%) compared to 67.3% of those who have >3 children reported discontinuation of BF, $p = 0.009$. All women delivered by cesarean section compared to 74.3% of those delivered by spontaneous vaginal delivery had discontinued BF, $p < 0.001$. All mothers who reported admission of their last child to NICU compared to 79.3% of those without such history had discontinued BF, $p = 0.028$. Mothers who reported using pacifier by their last child were more likely to discontinue BF compared to their peers (88.1% vs. 76.6%), $p = 0.032$. Mothers who expressed a negative attitude towards BF were more likely to report discontinuation of BF compared to those with a positive attitude (91.7% vs. 71.3%), $p < 0.001$.

Multivariate logistic regression analysis revealed that compared to Saudi mothers, non-Saudis were less likely to discontinue BF (aOR: 0.08, 95% CI: 0.02-0.32, $p < 0.001$). Considering primary school educated mothers as a reference category, mothers with higher education (secondary/Diploma, Bachelor and higher education) were at higher significant risk for discontinuing BF (aOR: 5.05, 95% CI: 1.29-19.73, $p = 0.020$; aOR: 7.72, 95% CI: 1.94-30.66, $p = 0.004$ and aOR 10.21, 95% CI: 4.16-100.04, $p < 0.001$; respectively). As opposed to house wives, governmental employees were at almost 3-folds significant risk to discontinue BF (aOR: 3.51, 95% CI: 1.16-10.60, $p = 0.026$) while private/business employees were at lower risk (aOR: 0.12, 95% CI: 0.02-0.79, $p = 0.028$). Mothers living in separate house were at almost double the risk to discontinue BF compared to those living with her own or husband's family (aOR: 2.21, 95% CI: 1.07-5.65, $p = 0.046$). Mothers delivered by cesarean section were at higher risk to discontinue BF compared to those delivered by SVD (aOR: 11.14, 95% CI: 3.72-81.30, $p < 0.001$). Mothers who reported NICU admission of their newborns were at higher risk to discontinue BF compared to others (aOR: 9.13, 95% CI: 2.17-76.11, $p < 0.001$). Mothers who expressed a positive attitude towards BF were a lower significant risk to discontinue BF compared to those who expressed a negative attitude (aOR: 0.25, 95% CI: 0.090-0.67, $p = 0.006$). Father's occupation, income, number of children and use of pacifier were not significantly associated with discontinuation of BF (Table 7).

Table 6: Factors associated with discontinuation of breastfeeding among mothers who initiated it

	Discontinued initiated breast feeding		p-value*
	No N=46 N (%)	Yes N=192 N (%)	
Age (years)			
<20 (n=9)	3 (33.3)	6 (66.7)	0.536
20-29 (n=106)	18 (17.0)	88 (83.0)	
30-39 (n=102)	22 (21.6)	80 (78.4)	
≥40 (n=21)	3 (14.3)	18 (85.7)	
Nationality			
Saudi (n=211)	31 (14.7)	180 (85.3)	<0.001
Non-Saudi (n=27)	15 (55.6)	12 (44.4)	
Mother's education			
Primary (n=16)	10 (62.5)	6 (37.5)	<0.001
Secondary/Diploma (n=96)	21 (21.9)	75 (78.1)	
Bachelor degree (n=120)	15 (12.5)	105 (87.5)	
Higher education (n=6)	0 (0.0)	6 (100)	
Mother's occupation			
House wife (n=128)	34 (26.6)	94 (73.4)	<0.001
Governmental (n=92)	6 (6.5)	86 (93.5)	
Private/business (n=18)	6 (33.3)	12 (66.7)	
Father's education			
Primary (n=7)	3 (42.9)	4 (57.1)	0.124
Secondary/Military institute (n=85)	16 (18.8)	69 (81.2)	
Bachelor degree (n=136)	23 (16.9)	113 (83.1)	
Higher education (n=10)	4 (40.0)	6 (60.0)	
Father's occupation			
Governmental (n=124)	19 (15.3)	105 (84.7)	0.030
Private (n=54)	18 (33.3)	36 (66.7)	
Military (n=59)	9 (15.3)	50 (84.7)	
Retired (n=1)	0 (0.0)	1 (100)	
Monthly income (Saudi Riyals)			
<5000 (n=20)	11 (55.0)	9 (45.0)	<0.001
5000-10000 (n=118)	21 (17.8)	97 (82.2)	
>10000 (n=100)	14 (14.0)	86 (86.0)	
Residence			
With own or husband's family (n=67)	23 (34.3)	44 (65.7)	<0.001
Separate house (n=171)	23 (13.5)	148 (86.5)	
Number of children			
One (n=67)	13 (19.4)	54 (80.6)	0.009
2-3 (n=116)	15 (12.9)	101 (87.1)	
>3 (n=55)	18 (32.7)	37 (67.3)	
Age of youngest child			
≤ 6 months (n=87)	18 (20.7)	69 (79.3)	0.686
> 6 months – 2 years (n=51)	28 (18.5)	123 (81.5)	
Mode of delivery of last child			
Spontaneous vaginal delivery (n=179)	46 (25.7)	133 (74.3)	<0.001**
Cesarean section (n=59)	0 (0.0)	59 (100)	

Table 6: Factors associated with discontinuation of breastfeeding among mothers who initiated it (continued)

Having health education about BF			
No (n=20)	6 (30.0)	14 (70.0)	
Yes (n=218)	40 (18.3)	178 (81.7)	0.207
If yes, source of information about BF (n=218)			
Doctor (n=25)	0 (0.0)	25 (100)	
Nurse (n=33)	4 (12.1)	29 (87.9)	
Social media(n=19)	4 (21.1)	15 (78.9)	
Relatives/friends (n=16)	1 (6.3)	15 (93.8)	
Self-education (n=54)	14 (25.9)	40 (74.1)	
Two sources (n=43)	10 (23.3)	33 (76.7)	
> two sources (n=28)	7 (22.2)	21 (77.8)	0.096
Chronic diseases			
No (n=226)	45 (19.9)	181 (80.1)	
Yes (n=12)	1 (8.3)	11 (91.7)	0.287**
Taking any medications			
No (n=183)	38 (20.8)	145 (79.2)	
Yes (n=55)	8 (14.5)	47 (85.5)	0.306
Prematurity of the last child			
No (n=223)	45 (20.2)	178 (79.8)	
Yes (n=15)	1 (6.7)	14 (93.3)	0.174**
NICU admission of the last child			
No (n=222)	46 (20.7)	176 (79.3)	
Yes (n=16)	0 (0.0)	16 (100)	0.028**
Health problems of the last child			
No (n=236)	46 (19.5)	190 (80.5)	
Yes (n=2)	0 (0.0)	2 (100)	0.650**
Using a pacifier by the current child			
No (n=154)	36 (23.4)	118 (76.6)	
Yes (n=84)	10 (11.9)	74 (88.1)	0.032
Attitude towards BF			
Negative (n=109)	9 (8.3)	100 (91.7)	
Positive (n=129)	37 (28.7)	92 (71.3)	<0.001

*Chi-square test

**Fischer Exact test

Table 7: Predictors of discontinuation of breast feeding: Multivariate logistic regression analysis

	Adjusted odds ratio	95% confidence interval	P-value
Nationality			
Saudi ^a	1.0		
Non-Saudi	0.08	0.02-0.32	<0.001
Mother`s education			
Primary ^a	1.0		
Secondary/Diploma	5.05	1.29-19.73	0.020
Bachelor degree	7.72	1.94-30.66	0.004
Higher education	10.21	4.16-100.04	<0.001
Mother`s occupation			
House wife ^a	1.0		
Governmental	3.51	1.16-10.60	0.026
Private/business	0.12	0.02-0.79	0.028
Residence			
With own or husband`s family ^a	1.0		
Separate house	2.21	1.07-5.65	0.046
Mode of delivery of last child			
Spontaneous vaginal delivery ^a	1.0		
Cesarean section	11.14	3.72-81.30	<0.001
NICU admission of the last child			
No ^a	1.0		
Yes	9.13	2.17-76.11	<0.001
Attitude towards BF			
Negative ^a	1.0		
Positive	0.25	0.09-0.67	0.006

a Reference category

Terms of father`s occupation, income, number of children and using of pacifier were not significant (removed from the final model).

Causes of discontinuation of breastfeeding

Table 8 demonstrates that the commonest reported causes of discontinuation of BF among the participants were thinking that breast milk is not enough (39.9%), going back to work (38.5%) and thinking that baby will be demanding on breastfeeding (13.3%).

Table 8: Causes of discontinuation of breastfeeding among mothers (n=218)

	Frequency	Percentage
Health condition of the mother	23	10.5
Health condition of the child	6	2.8
Social issues	12	5.5
Economic issues	4	1.8
Complications from breastfeeding	4	1.8
Dissatisfaction	7	3.2
Going back to work	84	38.5
Thinking that breast milk is not enough	87	39.9
Thinking that baby will be demanding on breastfeeding	29	13.3
Others	19	8.7

Discussion

Despite the documented high initiation rate of breastfeeding in the Kingdom of Saudi Arabia, (22-24) there is reluctance in continuing exclusive breastfeeding, (22) as it has been reported to be between 12-14% (22, 23). The present study was carried out mainly to assess the prevalence of breastfeeding initiation and discontinuation as well as the determinants of discontinued initiated breast feeding among females in Abha city.

In the present study, the majority of mothers have initiated breast feeding (86.2%) with 47.5% of them having initiated it within 24 hours of delivery. However, only 19.3% of them continued BF while the remaining majority discontinued it. This practice is not in line with recommendations of the WHO and UNICEF which stated that mothers should initiate breastfeeding within the first hour of birth and babies be exclusively breastfed for the first 6 months of life (5).

In the Kingdom Saudi Arabia, the rate of breastfeeding initiation on the first day of delivery was 92% in an old study, (25) and reaching 94.4% in a relatively recent study (26). Also in another Saudi study, 37% of mothers reported exclusive breastfeeding in the first 6 months after birth, and 31.9% of them continued to breastfeed their infants for 24 months (27) and in a study carried out in Abha (2012), 90.9% of mothers have initiated breastfeeding, however only 13.7% exclusively breastfed their infants for the first six months of life (12). This drop in the percentage of breastfeeding since birth up to 6 months of age, gives us a clue that there is a defect leading mothers not to maintain breastfeeding exclusively in the first 6 months of their infants' lives. Close rates of initiation of breast feeding were also reported internationally. Uganda (85.7%), (28) Italy (91.6 %) (29) and Australia (93.3 %) (30).

This practice of discontinuing BF, despite the high initiation rate is not unique in the Kingdom of Saudi Arabia as it has been reported on a global level as approximately 38% of babies are exclusively breastfed during their first year of life (9). In the Middle East, initiation of BF within an hour was reported among 34.3% of mothers while only 20.5% followed an exclusive BF for the first 6 months of newborn life (10). In Uganda, the prevalence of exclusive BF reached 24.6% at five months (28). In Cyprus, similar to our findings, initiation of BF was high, however, discontinuation was observed and was highest before the fourth month; additionally, the prevalence of EBF was only 5.0% at the infants' age of 6 months (31).

In the present study, the majority of mothers reported receiving health education regarding BF; the main sources were self-education, doctors and nurses. However, this history could not impact positively on both attitude towards BF as well as practicing it, which raises a question about the quality and nature of such education. Furthermore, self-education (through social media and Internet sources) and nurses were the only two ways that improved attitude towards BF, without effect on practice. In another recent Saudi study, the main sources of information about infant

feeding were social media, Internet sources, friends and relatives (24). It has been reported that social media and Internet sources' information, although questionable and hard to control, are cheap, easily accessible, and widely distributed (32).

It is obvious from results of the present study that more than half of the mothers expressed a positive attitude towards BF as 72.1% of them agreed that healthcare workers encourage breastfeeding, 71.9% agreed that breastfeeding helps in weight loss, 69.9% agreed that breastfeeding is easier than artificial feeding and 61.9% disagreed that breastfeeding has a negative effect on marital relationship. However, 60.4% disagreed that work places offer suitable private places for breastfeeding. These findings are in line with previous local, (33) regional (34, 35) and international studies (36).

In the current study, the determinants for discontinuing BF were being Saudi and governmental employees, which is an alarming finding and could be attributed to the fact that most of young Saudi women nowadays are working with no appropriate facilities for BF at work places as documented in this study and also due to inadequate maternity leave at governmental workplaces. This is also confirmed by finding that women working in private places or business were more likely to continue BF, mostly due to availability of BF places and facilities at work places. The same has been observed in studies carried out in Uganda (28) and Tanzania (37).

Furthermore, in this study, higher educated women were more likely to discontinue BF, mostly because of also being engaged in work, in addition to wrong belief that artificial feeding preserves a woman's breast shape which was documented by almost one-third of women in the present study and most probably being more among higher educated women. The same has been reported by others in Saudi Arabia (12, 24, 27). It has been documented that higher education does not mean higher knowledge and a positive attitude towards breast feeding due to lack of proper breastfeeding education of younger women at schools and universities (38).

Breast feeding in the present study was more likely to be discontinued among women living in a separate house compared to others living with their own or husband's house. This finding enforces the role played by family members in encouraging continuing breastfeeding. The same has been reported by others in Saudi Arabia (39).

In the current study, women delivered by cesarean section were more likely to discontinue breast feeding. It has been reported in many studies that women delivered by CS were less likely to initiate breastfeeding or to maintain it before hospital discharge as compared to those delivered vaginally (40-42). Moreover, it has been shown that maternal choice for the mode of delivery may affect her decision to breastfeed (43). This could be attributed to maternal reasons such as the side effect of the anesthesia drugs, (44) postpartum maternal fatigue or wound pain (45).

In accordance with others,(46, 47) the present study revealed that women having NICU admission of their newborns were more likely to discontinue breast feeding. Also, as expected, women who expressed a positive attitude towards BF were less likely to discontinue BF. The same has been reported by others (34, 38).

In the present study, commonest reported causes of discontinuation of BF among the participants were thinking that breast milk is not enough (39.9%), going back to work (38.5%) and thinking that baby will be demanding on breastfeeding (13.3%). In a similar Saudi study, the most frequent reasons for discontinuing BF was insufficient breast milk (25.9%), followed by getting pregnant (19.7%) and finally being a working mother (15.9%) (27). In Uganda, reasons associated with discontinuing BF were age of the infant, mother's work, infrequent attendance of antenatal care clinics, and improper breastfeeding practices at delivery (28). Insufficient breast milk was also reported by others as a main reason for discontinuing BF (37, 48, 49).

Strengths and limitation

Only inclusion of mothers of children aged up to two years minimized the possibility of recall bias. In addition, data of the present study explored the current practice of breast feeding in Abha city and defined the determinants of its discontinuation despite the high initiation rate. Additionally inclusion of mothers from both primary healthcare centers and outpatients clinics in children and maternity hospital ensured the best representation of various groups of people. However, the cross-sectional design applied in this study proves only association and not causality between dependent and independent variables. Also, assessment of the infant feeding history was done based on information gathered from mothers, which may overestimate the actual practice of exclusive breast feeding.

Conclusion

The study concluded that initiation of breastfeeding was very highly practiced by mothers in Abha city, Saudi Arabia. However, its discontinuation before the recommended time is also a highly reported practice. Discontinuation of breastfeeding was more frequently reported among Saudi mothers, those with higher education, governmental employees, those living in separate house, delivered by cesarean section, mothers who reported NICU admission of their newborns and those who expressed negative attitudes towards BF. The commonest reported causes of discontinuation of BF among the participants were thinking that breast milk is not enough, going back to work and thinking that baby will be demanding on breastfeeding.

Recommendations

In order to maintain the high rate of initiation of breastfeeding and following the recommendations of WHO and UNICEF, the following are recommended:

1. Creation and/or activation of breastfeeding classes for pregnant women during their antenatal visits to primary healthcare centers and hospitals.
2. Encouraging mothers to attend antenatal care visits to get information about the benefits of exclusive breastfeeding to children up to age of 6 months.
3. Providing suitable places for breastfeeding for working mothers as well as sufficient maternity leave.
4. Future study is warranted to explore the obstacles for exclusive breast feeding in more details, particularly those related to workplaces and negative attitude towards breastfeeding.

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