

## Early Initiation of Breastfeeding Practices in Riyadh Region, Kingdom of Saudi Arabia, KSA.



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### ABSTRACT

#### Background

It is widely recognized that child feeding practices in the first two years of life directly affect the nutritional status of the children and, ultimately, impact child lifelong health. Therefore, breastfeeding is regarded as the ideal method of infant feeding that provides maximum benefits to both the infant and the mother. The assessment of breastfeeding practices and determinants are essential to make national and sub-national comparisons, to describe trends over time, identify populations at risk, target interventions, and make appropriate policy decisions for sustainable breastfeeding promotion programs. The aim of this paper is to examine the current practices on breastfeeding in Riyadh Region, of Saudi Arabia, and determine the likely factors that affect breastfeeding practices in this country.

#### Methods

A comprehensive, in-depth, health facility-based survey of mothers with infants less than 24 months of age was conducted to assess the patterns and determinants of breastfeeding. A convenient sample of 500 Saudi mothers was interviewed to recall their breastfeeding practices and attitude. The interviews included a detailed questionnaire based on the WHO (2010) infant and young child feeding assessment adapted for the case of the Saudi Arabia. Moreover, the study used the standard WHO criteria for assessing breastfeeding indicators of the targeted population.

#### Results

The study population comprised of 54% male and 46% female children. Exclusive breastfeeding rate for up to six months was very low (2.9%). Although breastfeeding rate in general was over 90% yet, early initiation of breastfeeding was found 38% among the respondents (29% of mothers initiated breastfeeding within the first 24 hours and 23% initiated breastfeeding after the first 24 hours). Reasons reported for delayed response to early initiation of breast feeding (for the first hour) include caesarian operation, late discharge of the child from incubator, mother sickness, child sickness and to a lesser extend lack of knowledge about breastfeeding and cultural

factors (traditions). Breastfeeding initiation showed increasing trend with high mother education; mothers being not working; vaginal delivery; female child; and among infants with previous child aged 3 to 5 years. The proportion of children born in the last 24 months who were ever breastfed was found among 62% of infants while, never breastfeed children represented about 9.6% of the total sample and the reasons reported by the respondent mothers were child sickness, child refusal, no enough milk, mother sickness and body image.

### Conclusions

In conclusion, infant and young child feeding practices in this study were suboptimal. There is a need for ensuring that not only is appropriate national policies and legislation in place but that these are implemented and enforced. National community-based breastfeeding intervention programmes are urgently needed for the promotion of exclusive breastfeeding. More in-depth research is required to feed into the design of strategies for effective social and behavior change communication.

### Keywords

Breastfeeding  
Early Initiation of Breastfeeding  
Duration  
Ever Breastfeeding  
Infant feeding  
Saudi Arabia

## I. INTRODUCTION

According to Saudi Ministry of Health recommendations (2014) [1], new borns should be fed exclusively with breast milk during their first 6 months of life. The aim of this paper is to identify the main social determinants of initiation, duration and exclusivity of breastfeeding (BF) from birth to 6 months, at the population level. The results are hoped to help the development of public health interventions aimed at improving the prevalence of exclusive breastfeeding for at least the first 4 to 6 months of babies' life.

It is widely accepted that what occurs to a child in the first two years of life is perilous for lifelong health. Breast milk is the perfect and unique food source for the infants during this period and no other diet can replace it as it contains all nutrients required for the infant's optimum health, growth and development [2,3,4]. Benefits of breast milk are innumerable, its protective effect in reduce risk of developing diabetes, obesity, hypertension, metabolic syndrome and breast cancer in mothers and children are well documented [3,5,6,7]. Furthermore, breastfeeding reduces the risk of developing diarrhea, respiratory infections, digestive disorders, asthma, allergies and some neurological disorders [8,9]. Worldwide efforts have focused on boosting breastfeeding and complementary feeding particularly during the critical first 24 months of age. Thus, the World Health Organization (WHO) and the United Nation Fund for Children (UNICEF) in 1994, recommended that all new borns are to be place in skin-to-skin contact with their mothers immediately after birth, to support the early initiation of breastfeeding (EIBF) within 1 hour after birth and to exclusively breastfeed the child until 6 months of age with continued breastfeeding up to 24 months or longer [10,11,12,13].

Despite the global efforts, many studies showed that the propensity of mothers to breastfeed has deteriorated in recent years. This downwards tendency in breastfeeding is also a shared phenomenon observed in all Arab countries and the situation in Saudi Arabia is not an exception [14,15,16,17,18]. For instant, and according to UNICEF (2015) [19] the prevalence of early initiation of breastfeeding (EIBF) ranges from 14% to 95% with an average of 64% in 128 countries, and one-half of these countries have a prevalence of less than 50% [19]. In low-income and middle-income countries, only 37% of children younger than 6 months of age are exclusively breastfed according to Lancet (2016) and that breastfeeding duration is shorter in high-income countries than in those that are resource-poor [12].

Studies in Saudi Arabia during the last two decades showed that, Saudi females in general recognize the benefits of breastfeeding for the new born yet, an extensive review of the Saudi data concluded that the pattern of infant feeding in Saudi Arabia has not changed much and remains very far from compliance with WHO recommendations and that breastfeeding is no longer a norm in many Saudi communities [20].

A recent study in 2017 reported that 94.4% of Saudi mothers were successful in initiating breastfeeding on the first day of delivery, however, only 13.7% of all infants were exclusively breastfed at the age of 6 months [21]. Other study in 2009 indicated a declining trend of exclusive breastfeeding from 90% to 30% at the age of 3 months and drop in the rate of the continuation of breast-feeding for up to 2 years from 32% in 1987 to 3.2% in 2000. The same study also found that only 0.2% of mothers in Saudi Arabia exclusively breast feed their infants at 2 years of age [22]. Similar results were also obtained earlier in 2006, that the rate of breastfeeding in Kingdom of Saudi Arabia was 31%, with a downwards trend [23]. Many reasons are known to be associated with the delay in the early initiation of breastfeeding, Rowe-Murray and Fisher (2002) [24], revealed that women who had a cesarean section experienced a significant delay in initiating breastfeeding compared with women giving birth vaginally, with or without instrumental assistance. Previous work [25, 25] showed that, Saudi women who gave birth vaginally were more likely to breastfeed within the first hour, and at 24 hours after birth than those who had a cesarean section. One of the reasons that have serious impact on the early initiation of breast feeding in some of the Saudi Arabia hospitals is that, healthy term babies are routinely separated from their mothers, and given infant formula supplementation [25].

To address the gaps in infant and young child feeding practices, there is a need to acquire a better understanding of the factors associated with suboptimal breastfeeding (specifically, non-exclusive breastfeeding) and complementary feeding that is limited in quantity, quality and variety. On top is to investigate the factors that currently constrain best practices in infant feeding. Therefore, this study aims to provide evidence-based information and make it possible for stakeholders to appropriately engaged, support and deliver optimal infants and young child feeding (IYCF) interventions in Kingdom of Saudi Arabia (KSA).

## II. METHODS

A comprehensive, in-depth, health facility-based survey of mothers with infants less than 24 months of age was conducted to assess the patterns of infant feeding practices among the targeted population in Riyadh the capital of the Kingdom of Saudi Arabia. The survey was implemented in 27 health facilities (centers) representing 5 purposively selected administrative sectors of the Riyadh city (North, South, Central, East and West) in addition to two centers from rural

areas around the Riyadh city. Health centers were selected using a stratified multistage cluster sampling design. A total of 500 respondents were chosen for the interview 400 of them from urban sectors (16 randomly selected from each center) and 100 from two rural health centers (25 respondents each). The study population was restricted to mothers of children whose age was less than 24 months and who were willing to participate in the study.

**Study Sample and tools**

A total of 500 mothers of infants less than 24 months of age were selected and interviewed to recall their breast and complementary feeding patterns and determinants, from birth to the present. In addition, specific data on feeding practices, immunization rates, micronutrient consumption and other feeding-related factors, such as family income and source of food, were collected and analyzed to interpret the factors and determinants of infant feeding practices within the target communities (WHO/UNICEF, 2010) [27]. However, the core indicators of the survey were mainly those recommended by the WHO (2008) [28]. In-depth interviews with the selected mothers in each health facility was carried out by experienced health personnel (nurses and dietitians) and medical staffs (doctors,) who had a specially designed training on the study tools. The survey was conducted between May 2016 and August 2016.

**III. RESULTS**

**Socio-economic characteristics**

**background information of the Parents of the study population**

The study interviewed 500 mothers of the children whose age was < 24 months and who came to health centers for regular vaccination service. Study population was representing the different geographical locations of greater Riyadh Region including rural areas belong administratively to the capital city. The household head (child’s father) age ranged between 30 to 40 years for 54.6% of the respondents; 40 to 50 years for 18.8%; 20 to 30 years for 21.6%; 50 to 60 years for 4.6% and 0.4% for fathers whose age was above 60 years (Table 1). While the age characteristics of the mothers interviewed indicated that, 37.8% of them fall within the age group 25 to 30 years; 20.6% within age group 30 to 35 years; 17.2% within age group 20 to 25 year and 23% of the mothers their age was above 30 years.

As for the level of education of the fathers, it was found that 37.6% of them were university graduates while, those with secondary level represent 34.6% and 10.4% with primary level of education. Very few of the fathers (6) where illiterate represent 1.2% and five of the father were having postgraduate degrees (1%). On the other hand, the level of education reached by the mothers under investigation showed similar trend as their husbands where, the highest percentage (42.2%) were university graduates followed by the mothers with secondary level of education (23.8%). Mothers whose level of education was intermediate and primary represented 15.4 and 13.8% respectively.

Regarding the posts held by the fathers of the children under the study (Table 1), the highest percentage of them (43.2%) were working for the military and police forces followed by 31.8% work for the private sector, 10.6% work for the education sector and 19% working in other different jobs. However, out of the 500 mothers interviewed 368 of them (73.6%) were housewives. The rest of mothers were found to perform different types of works such as nursing (7.2%); labor work (5%); teaching (4.8%); physician and pharmacist (1.2%); and about 4.8% of them were found to be students. Results

showed that, among working mothers, 38% of them were working on full-time basis compared to only 5% who were working on part-time basis (Table 1). Mothers where asked about the duration of time staying away from their children on daily basis, results (Table 1) showed that, from the total number of the mothers only 127 (25.4%) who stated that they stay away for different number of hours, for instant, 21% of those mothers (127 mothers) reported staying away for 4 to 6 hrs.; 57% staying away for 7 to 8 hrs.; 19% staying away for 9 to 12 hrs. and only 2% staying away for more than 12 hrs.

The average income of the householder (Table 1) was between 3000 to 5000 Saudi Riyals (SR) for 34.4% of the respondents; between 6000 to 8000 SR for 31.2% of the respondents; between 8000 to 10000 SR for 22.6% of the respondents and only 12.8% of the respondents their income was higher than 10,000 SR.

**Table 1. Background information of the Parents of the study population**

	Response	Father		Mother	
		Freq.	(%)	Freq.	%
Parent’s Age (Years)	<20	0	0	7	1.4
	20-30	108	21.6	275	55
	30-40	273	54.6	103	20.6
	40-50	94	18.8	115	23
	50-60	23	4.6	0	0
	>60	2	0.4	0	0
Parent’s Education	Illiterate	6	1.2	22	4.4
	Primary	52	10.4	69	13.8
	Intermediate	76	15.2	77	15.4
	Secondary	173	34.6	119	23.8
	Graduate	188	37.6	211	42.2
	M.Sc. Holders	5	1	2	0.4
Parent’s Marital status	married	496	99.2	450	90
	Divorced	4	0.8	48	9.6
	Widow	0	0	2	0.4
Parent’s Profession	Health Personnel	20	4	42	8.4
	Military and Police	171	34.2	0	0
	Educational	53	10.6	24	4.8
	private Sector	159	31.8	0	0
	Others	97	19.4	42	8.4
	Housewives	0	0	368	73.6
	Student	0	0	24	4.8
	Hours away from child (Mothers)	Always available	0	0	373
4-6 hrs.	0	0	27	21	
7-8 hrs.	0	0	73	57	
9-12 hrs.	0	0	24	19	
>12 hrs.	0	0	3	2	
Parent’s Income (SR)	Non	0	0	386	73.6
	<3000	0	0	36	7.2
	3000-5000	167	33.4	18	3.6
	6000-8000	156	31.2	43	8.6
	8000-10000	113	22.6	21	4.2
	>10000	64	12.8	14	2.8
Family size (person)	2-3			140	28
	4-5			206	41.2
	6-7			93	18.6
	≥ 8			61	12.2

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**Background information of the of the study population (Infants age less than 24 months)**

Two Hundred Seventy-Two children (54%) were males compared to 229 female children (46%). The age distribution of the children investigated (Table 2) showed that 31.6% of the children their age ranged between 7 to 12 months; 25% their age ranged between 13 to 18 months and 22% their age ranged between 19 to 24 months. Children whose age was less than six months represented about 21% of the total children, (9% for age ranged between 5 to 6 months; 8% for age ranged between 3 to 4 months and 4% for age ranged between 1 to 2months).

It was observed from the results that, almost one third (27%) of the infants were delivered through caesarian section operation compared to vaginal birth (73%). Ninety percent of the born children were healthy (free from any disease) as reported by their mothers. The results of the birth weights of the children (taken from the child record card), indicated that children whose weight was equal to or greater than 2.5 Kg represented 79% compared to 21% whose weight was less than 2.5 Kg. Results (Table 2) revealed that only 5% of the studied children have a previous brother or sister whose age was between 1 to 2 years however, the majority of the study population (63%) their previous brothers or sisters age was above 2 years this is compared to 32% of the studied children who were the first child to their parents.

**Table 2. Child Background information**

Response		No	(%)
Gender	Female	271	54.0
	Male	229	46
Age (months)	1 – 2 m	18	3.6
	3 – 4 m	38	7.6
	5 – 6 m	47	9.4
	7 – 12 m	158	31.6
	13 – 18 m	128	25.6
	19 – 24 m	111	22.2
Method of Delivery	Vaginal	366	73.2
	Caesarean	134	26.8
Weight at Delivery	< 2.5 Kg	106	21.2
	= 2.5 Kg	122	24.4
	> 2.5 Kg	272	54.4
Health status at Birth	Healthy	465	93
	Sick	31	6.2
	Chronic Disease	4	0.8
Vaccination Status	Yes	484	96.8
	No	16	3.2
Age of the previous Child (if any) (years)	Non	160	32.0
	1-2 Years	27	5.4
	3 -5 years	195	39.0
	>5 years	118	23.6

**Breastfeeding Practices**

**Breastfeeding Status, Reasons for never breastfeeding and reasons for delaying early initiation of breastfeeding for more than One hour**

The term breastfeeding rate (BFR) refers to those infants who have been put to the breast, even if only once. Accordingly, BFR in this study was found to be over 90% (Table 3). On the other hand, Initiation of breastfeeding within 24 hours after birth was 67% (38% within 1 hour and 29% for less than 24 hours). About Ten percent of the interviewed mothers reported never breastfeed their children. Remarkably, exclusive breastfeeding for six months was found to be very low (2.9%) among the studied mothers (Table 3).

There were different reasons reported (Table 3) by the mothers for the delayed response to early initiation of breast feeding (for the first hour). For instant, 24% of the mothers said the delay was because of the caesarian operation, 20% said the delay caused by the staff of the hospital (not bringing the child to mother at the right time), 17% of the mother said the reason was the late discharge from the incubator. Other reasons were also reported such as mother sickness (12%), child sickness (9%) and to a lesser extend lack of knowledge about breastfeeding and cultural factors (traditions) where another reason stated by 2% of the mothers. In contrast, mothers who did not breastfeed their babies (10%) attributed this to many reasons (Table 3) including child sickness, child refusal, no enough milk, mother sickness and body image (33%, 29%, 29%, 23% and 18% respectively). However, there was other less frequent reasons reported by mothers such as, the child being kept in the incubator or because of the caesarian operation (6%), and 2% because breastfeeding is too painful or stressful.

Striking results obtained regarding the exclusive breastfeeding, sixty four percent (64%) of the mothers breastfeed their babies exclusively for only one day (first day of the child age); 10% breastfeed exclusively for 5 to 8 weeks; 8% breastfeed exclusively for 1 to 4 weeks; 3 from 13 to 16 weeks and 4% for 17 to 20 weeks and leaving only 3 mothers (less than 1%) who can be considered exclusively breastfeed their children up to six months (Table 3). It is worth mentioning that, the meaning of the exclusive breastfeeding as defined by the WHO was clearly explained to the interviewed mothers.

Regarding the baby's first feed, the majority (64%) of mothers said it was the milk formula while 35% stated that it was the colostrums where, the rest of mothers (less than 2%) used to give their babies liquid Glucose, herbs water, dates water or plain water.

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**Table 3. Breastfeeding Status, Reasons for Never Breastfeeding and Reasons for Delaying Early Initiation of Breastfeeding for more than One Hour**

Response	No	(%)	
Breastfeeding Rate (BFR)	452	90.4	
Exclusive Breastfeeding (Ex.BF)	3	2.9	
Early Initiation of Breastfeeding (EIBF) Within one hour	192	38.4	
Early Initiation of Breastfeeding (EIBF) < 24 hrs.	145	29	
Early Initiation of Breastfeeding (EIBF) > 24 hrs.	115	23	
Never breastfed Infants	48	9.6	
Duration of the exclusively breastfeeding	First day of delivery	332	66.4
	1-4 weeks (up to 1 month)	42	8.4
	5-8 weeks (up to 2 month)	50	10
	9-12 weeks (up to 3 month)	35	7
	13-16 weeks (up to 4 month)	17	3.4
	17-20 weeks (up to 5 month)	21	4.2
Reasons for Never Breastfeeding	21-24 weeks (up to 6 month)	3	0.6
	baby Sickness	16	33.3
	Mother Sickness	11	22.9
	No Enough Milk	14	29.2
	BF is too painful	1	2.1
	BF is too stressful	1	2.1
	Body Image	9	18.8
	Child Refused BF	14	29.2
	Caesarean	3	6.3
Child in the Incubator	3	6.3	
Reasons for delaying The Early Initiation of breastfeeding	Others	2	4.2
	Child given pre-lacteal feed	4	1
	Caesarean Delivery	74	24
	Late Discharge from Incubator	52	17
	Mother Sickness	38	12
	Delay caused by hospital staff	62	20
	Cultural Factors	6	2
	Child Sickness	29	9
	Lack of Knowledge of BF	7	2
	Lack of Breast Milk	8	3
The baby's first feed	No reasons	28	9
	colostrums	173	34.6
	Milk Formula	320	64.0
	Herbs Water	1	0.2
	Glucose water	3	0.6
	Dates water	1	0.2
Plain water	2	0.4	

**Early Initiation of Breastfeeding Indicator**

Early Initiation of breastfeeding (EIBF) indicator is defined by the WHO (2008) as the proportion of children born in the last 24 months who were put to the breast within one hour of birth. However, early initiation of breastfeeding based on that definition was found to be 38% among the respondents (Table 4.1) while, 29% of mothers initiated breastfeeding within the first 24 hours (One day) and 23% initiated breastfeeding after the first 24 hours. As shown in Table 4.1, more than half of the mothers who initiated breastfeeding before 1 hour, their age was between 25 and 35 years (13.8% of the total sample) followed by mothers whose age was over 35 years. Almost, similar pattern was observed among the mothers who initiated breastfeeding before the 24 hours where, the majority of the mothers their age was between 25 and 35 years followed by mothers whose age was over 35 years. Nevertheless, results show that within the mothers whose age was less than 25 years, almost half of them initiated breastfeeding within the first hour.

Considering the education levels of the mothers who initiated breastfeeding within the first hour results (Table 4.2) showed that, there was increasing trend of breastfeeding initiating with the education level where, 14.4%, 9.6%, 7.0%, 5.4% and 2.0% for mothers with graduate, secondary, intermediate, primary and illiterate education respectively. A typical trend was observed among the mothers who initiated breastfeeding within the 24 hours of the infant age (Table 4.2).

As expected, not working mothers (housewives) represented the highest percentage (30.2% and 21.6%) among mothers who initiated breastfeeding for the “first hour” and “less than 24 hours” respectively, compared to working mothers. Interestingly, about one third of mothers from within each work category (nurse, physicians, and students) initiated breastfeeding within the first hour compared to mothers working as teachers and those performing administrative work.

Results (Table 5) showed that early initiation of breastfeeding in the first hour was higher for female infants (22.2%) compared to 16.2% of the males. similar results were obtained for the early initiation of breastfeeding in the less than 24 hours (15.8% and 13.2% for the female and male infants respectively).

Table 4.1. Early Initiation of Breastfeeding (EIBF) and Mothers Age

Mother Characteristics		Early Initiation of Breastfeeding (EIBF)					
		Within one hour		< 24 hrs.		> 24 hrs.	
		No	%	No	%	No	%
	<b>Total</b>	<b>192</b>	<b>38.4%</b>	<b>145</b>	<b>29%</b>	<b>115</b>	<b>23%</b>
<b>Mother age</b>	15-20 years	4	0.8%	1	0.2%	2	0.4%
	20-25 years	36	7.2%	19	3.8%	20	4%
	25-30 years	69	13.8%	56	11.2%	44	8.8%
	30-35 years	37	7.4%	33	6.6%	24	4.8%
	>35 years	46	9.2%	36	7.2%	25	5.0%

Table 4.2. Early Initiation of Breastfeeding (EIBF) and Mothers Education Level

Mother Characteristics		Early Initiation of Breastfeeding (EIBF)					
		Within one hour		< 24 hrs.		> 24 hrs.	
		No	%	No	%	No	%
	<b>Total</b>	<b>192</b>	<b>38.4%</b>	<b>145</b>	<b>29%</b>	<b>115</b>	<b>23%</b>
<b>Education Level</b>	Illiterate	10	2.0%	6	1.2%	4	0.8%
	Primary	27	5.4%	15	3.0%	21	4.2%
	Intermediate	35	7.0%	20	4.0%	19	3.8%
	Secondary	48	9.6%	42	8.4%	22	4.4%
	Graduate	72	14.4%	61	12.2%	49	9.8%
	M.Sc.	0	0.0%	1	0.2%	0	0.0%

Table 4.3. Early Initiation of Breastfeeding (EIBF) and Mothers Job

Mother Characteristics		Early Initiation of Breastfeeding (EIBF)					
		Within one hour		< 24 hrs.		> 24 hrs.	
		No	%	No	%	No	%
	<b>Total</b>	<b>192</b>	<b>38.4%</b>	<b>145</b>	<b>29%</b>	<b>115</b>	<b>23%</b>
<b>Mother Job</b>	House Wife	151	30.2%	108	21.6%	85	17%
	Nurse	12	2.4%	7	1.4%	11	2.2%
	Labor	12	2.4%	4	0.8%	4	0.8%
	Student	8	1.6%	5	1.0%	5	1.0%
	Teacher	4	0.8%	10	2.0%	5	1.0%
	Administrative	1	0.2%	5	1.0%	1	0.2%
	Doctors and Pharmacists	2	0.4%	3	0.6%	0	0.0%
	others	2	0.4%	3	0.6%	4	0.8%

Table 4.4. Early Initiation of Breastfeeding (EIBF) and Mothers Marital Status

Mother Characteristics		Early Initiation of Breastfeeding (EIBF)					
		Within one hour		< 24 hrs.		> 24 hrs.	
		No	%	No	%	No	%
	<b>Total</b>	<b>192</b>	<b>38.4%</b>	<b>145</b>	<b>29%</b>	<b>115</b>	<b>23%</b>
<b>Marital Status</b>	Married	173	34.6%	132	26.4%	101	20.2%
	divorced	19	3.8%	12	2.4%	14	2.8%
	Widow	0	0.0%	1	0.2%	0	0.0%

Table 5. Early Initiation of Breastfeeding (EIBF) and Child Characteristics

Child Characteristics		Early Initiation of Breastfeeding					
		Within one hour		< 24 hrs.		> 24 hrs	
		No	%	No	%	No	%
Child Sex	Total	192	(38.4%)	145	(29%)	115	(23%)
	Male	81	16.2%	66	13.2%	60	12%
	Female	111	22.2%	79	15.8%	55	11%
Method of Delivery	vaginal	166	33.2%	99	19.8%	72	14.4%
	Caesarean	26	5.2%	46	9.2%	43	8.6%
Child weight at delivery time	<2.5 Kg	31	6.2%	25	5.0%	35	7.0%
	2.5 Kg	48	9.6%	31	6.2%	31	6.2%
	> 2.5 Kg	113	22.6%	89	17.8%	49	9.8%
Age of the Previous Child	No previous Child	55	11%	39	7.8%	38	7.6%
	1-2 Years	11	2.2%	7	1.4%	5	1.0%
	3 -5 years	82	16.4%	57	11.4%	45	9.0%
	>5 years	44	8.8%	42	8.4%	27	5.4%

Never Breastfed Infants

Table 6.1 showed that 48 out of the total 500 infants representing 9.6% were never put to breast. Almost half of those infants their mother's age was between 25 to 30 years and one third of them their mother's age was between 20 to 25 years. Educational level seems to play imperative role where, 29 of the 48 mothers (almost two-third) were university graduate. However, results that, half of the mothers (24 out of the 48) were housewives (4.8% of the 500 mothers). Being divorced or widowed seems to have no significant effect on not to breastfeed infant where the majority of the mothers who did not breastfeed their infants (44 out of 48 mothers) were married.

With regard to the infant's characteristics and not being breastfed, table 6.2 indicate that female infants who never breastfed were higher in number compared to male infants (26 and 22 respectively). Results also showed that never breastfed infants who were delivered vaginally outnumbered those who were delivered through caesarean operation (29 and 19 infants respectively). The weight of the child seemed to have less effect on being never breastfed (Table 6.2) yet, the number of infants whose weight at delivery was above 2.5 Kg. was higher compared to those with delivery weights of 2.5 and less than 2.5 Kg. (12 and 15 infants respectively). Presence and age of a previous brother or sister was investigated among the infants who were never breastfed, and the results showed that (Table 6.2) the highest number (28 infants) among the never breastfed group was for those with no previous child in the family compared to those with brothers and sisters whose age was 1 to 2 years; 3 to 5 years and >5 years (4, 11, and 5 infants respectively).

Table 6.1. Never Breastfed Infants and Mother Characteristics

Mother Characteristics		Never breastfed Infants	
		No	%
Age (years)	20-25	11	2.2%
	25-30	20	4.0%
	30-35	9	1.8%
	>35	8	1.6%
Education Level	Illiterate	2	0.4%
	Primary	6	1.2%
	Intermediate	3	0.6%
	Secondary	7	1.4%
	Graduate	29	5.8%
Work / Job	M.Sc.	1	0.2%
	House Wife	24	4.8%
	Nurse	6	1.2%
	Labor	5	1.0%
	Student	6	1.2%
	Teacher	5	1.0%
	Administrative	1	0.2%
	Doctors and others	1	0.2%
	0	0.0%	
Marital Status	Married	44	8.8%
	divorced	3	0.6%
	Widow	1	0.2%

Table 6.2. Never Breastfed Infants and Infant Characteristics

Infant's Characteristics		Never breastfed Infants	
		No	%
	Total	48	9.6%
	Male	22	4.4%
Sex/Gender	Female	26	5.2%
	vaginal	29	5.8%
Method of Delivery	Caesarean	19	3.8%
	<2.5 Kg	15	3.0%
Weight at Delivery	2.5 Kg	12	2.4%
	> 2.5 Kg	21	4.2%
	No previous Child	28	5.6%
Age of the Previous Child	1-2 Years	4	0.8%
	3 -5 years	11	2.2%
	>5 years	5	1.0%
	No previous Child	22	4.4%

## Ever Breastfeeding

Ever breastfeeding indicator is defined by the WHO (2008), as the proportion of children born in the last 24 months who were ever breastfed. Results (Table 3) showed that, out of the 500 infants investigated, 312 (62%) of them were ever breastfed. It was found that (Table 4.1), more than half (56%) of the ever-breastfed infants their mothers' age was between 20 to 30 years compared to 43% of mothers whose age was over 30 years. Results indicated that, the rate of ever-breastfeeding generally increases with mothers' education level, illiterate (5%), primary (16%), intermediate (18%), secondary (26%) and 35% for the university graduates. However, within the highest group (university graduates) the ever-breast infants, almost half (49%) of the infants were never breastfed compared to only 26% among the group of mothers with intermediate education.

Ever-breastfeeding was highest (79%) among non-working (house-wife) mothers. However, within each working mother group, the rates of ever-breastfed infants were as follow 88, 60, 54, 50, 42 and 33% for mothers working as administrators, labors, students, physicians, nurses and teachers respectively. Infants of married mothers (87%) were higher than the those of the divorced mothers (13%) yet, 40% of infants within the group of married mothers were never breastfed compared to only 19% within the divorced mothers. Results in Table 5 revealed that, the rate of ever-breastfeeding among male infants (46%) is slightly lower than that of the female infants (54%). Ever-breastfeeding rates with regards to the method of delivery were 77% and 23% for the infants delivered through vagina and cesarean operations respectively however, among the infants with vaginal delivery 65% were ever-breastfed compared to 55% of the infants delivered by cesarean section. The rates of ever-breastfeeding with regards to the weight of the infants at delivery time (Table 5) indicate that, the rate was highest (56%) among infants whose weights were >2.5Kg followed by 23% and 20% for infants whose weights were 2.5Kg and <2.5Kg respectively.

Distribution of the ever-breastfeeding among infants with regard to the presence or absence of a previous child in the family is presented in Table 5. It was found that 47% of the ever-breastfed infants had 3 to 5 previous children; 20% of infants with >5 previous child; and 10% of infants with 1 to 2 previous children while 23% of the infants, had no previous child (first baby).

## IV. DISCUSSION

Even though breastfeeding practices are deeply rooted in the Saudi Arabia cultural and Islamic. Most of studies found exclusive and continued breastfeeding in Saudi Arabia falls enormously far behind the WHO recommendations [28, 29]. Breastfeeding rate which refers to those infants who have been put to the breast, even if only once according was found to be over 90%. This result is almost similar to the majority of breastfeeding studies among Saudi mothers [16, 28].

Exclusive breastfeeding rate for up to six months was very low (2.9%) based on the WHO definition. However, this was similar to results reported by Mosher (2016) [28] who found that only 2.6% of the women from the non-BFHI hospital in Saudi Arabia were still breast feeding exclusively by 6 months also, Al-Amoud (2003) [16] reported 3.3% exclusive breastfeeding rate in Saudi Arabia. Other study reported higher rates of exclusive breastfeeding (37.5%) reported by Asheblly and Sobaih (2016) [30].

Daifellah (2014) reported that the prevalence of 'exclusive breastfeeding' in the KSA could not be determined or is inconsistently reported and that, comparisons with the

WHO and other international organizations' recommendations cannot be made because of the weakness of study design used in these investigations. However, studies which used the WHO definition reported that the 'exclusive breastfeeding' rate at six months of age ranged from 1.7% [31] to 24.4% [32]. Other studies found low rates of 'exclusive breastfeeding' at six months after birth: 0.8% [33]; 8.9% [34] and 5.6% [35]. On the other hand, two national surveys recorded relatively high rates of 'exclusive breastfeeding' at six months of age of 33% and 38%, respectively [17, 36].

Although breastfeeding rate in general was over 90% yet, early initiation of breastfeeding was found 38% among the respondents (29% of mothers initiated breastfeeding within the first 24 hours and 23% initiated breastfeeding after the first 24 hours). El-Gilany et al. (2011) [37] reported that only 11.4% of mothers started breastfeeding within the first hour after delivery while Amin et al. (2011) [38] found that 77.8% of studied mothers had initiated breastfeeding within 24 hours postpartum.

Reasons reported for delayed response to early initiation of breast feeding (for the first hour) include caesarian operation, late discharge of the child from incubator, mother sickness, child sickness and to a lesser extend lack of knowledge about breastfeeding and cultural factors (traditions) similar results were obtained by Esteves et al (2014) [39, 40]. Reasons for never breastfeeding children were child sickness, child refusal, no enough milk, mother sickness and body image. Breastfeeding initiation showed increasing trend with high mother education; mothers being not working; vaginal delivery; female child; and among infants with previous child aged 3 to 5 years. The proportion of children born in the last 24 months who were ever breastfed was found among 62% of infants.

## V. CONCLUSIONS

This study revealed that current breast-feeding rates and practices fall short of the recommendations set forth by the WHO. Despite the existence of WHO and UNICEF recommendations since 1989, the extensive efforts exerted by the Ministry of health and the pre-and postnatal services provided yet, the exclusive breastfeeding assessed in this study is almost none and 10% of the mother never breastfed their babies. Although breastfeeding rate was found to be over 90% yet, only 38% of new borns have begun breastfeeding within 1 hour of birth and 29% for less than 24 hours. The most pronounced statement by mother was that 45% of them have received free infant's milk samples on their discharge from the hospital.

In conclusion, expansion, monitoring and reaccreditation of breastfeeding, adherence of clinical care standards and boosting the policies supporting the delivering of the health and nutrition care would increase breastfeeding outcomes including EIBF, exclusive breastfeeding and a longer duration of breastfeeding.

## VI. LIST OF ABBREVIATIONS

BFHI	Baby Friendly Hospital Initiative
EIBF	Early initiated breastfeeding
IYCF	Infants and young child feeding
KSA	Kingdom of Saudi Arabia
SR	Saudi Riyal

**VII. DECLARATIONS**

- Ethics approval and consent to participate.

The Institutional Review Board (IRB) of King Saud University (KSU) has ethically approved the study with reference number E-14-1101. Written informed consents were obtained from all participants and confidentiality was assured. Participants have the right to withdraw, without any consequence, at any time prior to or at any point, during or after the start of the study. Participants were assured that any information provided will be used only for research purposes.

**VIII. CONSENT FOR PUBLICATION**

The Institutional Review Board (IRB) of King Saud University (KSU) has ethically approved the study. An official letter produced from the Federal Ministry of Health and directed to all its regional and state level offices approving the study and requesting participation. Participants were fully informed about their rights to participate, withdraw, without any consequence, at any time prior to or at any point, during or after the start of the study. Participants were assured that any information provided will be used only for research purposes.

**IX. AVAILABILITY OF DATA AND MATERIALS**

Please contact author for data requests

**X. COMPETING INTERESTS**

The authors declare that they have no competing interests.

**XI. FUNDING**

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**XII. AUTHORS' CONTRIBUTIONS**

OS Conceived the study, coordinated data collection, performed the statistical analysis, and drafted the manuscript. AA participated in the design of the study and tool development, performed statistical analysis.

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