

## KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING EXCLUSIVE BREASTFEEDING AMONG MOTHERS ATTENDING PRIMARY HEALTH CARE CENTERS IN ABHA CITY

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### ABSTRACT

**Background:** Exclusive breastfeeding for 6 months is viewed as a major public health intervention to reduce the child mortality, particularly, in the neonates and infants.

**Aims & Objectives:** To study the knowledge, attitude and practice regarding exclusive breastfeeding as well as to identify its determinants and explore barriers against it among mothers in Abha City.

**Materials and Methods:** A cross sectional study was adopted. It included all mothers, who have a child aged 6-12 months, attending primary health care centers within the Abha city. An Arabic validated questionnaire was used for data collection. It comprises 3 parts as follows: personal characteristics, knowledge about breast feeding and attitude toward breastfeeding.

**Results:** A total of 600 women, with children aged between 6 months and 12 months, from those registered in PHCC in Abha were included in the study. Their age ranged between 18 and 47 years with a mean of 31.4±5 years. Most of them were Saudi (88.2%) and university graduated (78.7%). Overall mothers' breastfeeding knowledge was good among more than half of them (55.3%) and excellent among 30.7% of them while it was unsatisfactory among 14% of the mothers. Positive attitude towards breastfeeding was reported among 62.2% of the participants while negative attitude was reported among more than one-third of them (37.8%). Breastfeeding in the first 6 months was practiced by 24.7% of the participated mothers. Of them, only 7.3% practiced exclusive breast feeding. In the multivariate analysis, governmental workers had significant double probability of not practicing exclusive breastfeeding as opposed to house wives (adjusted OR= 1.9, 95%CI= 1.02-4.3). Women delivered by caesarean section were at double risk for non-practicing exclusive breastfeeding compared to those delivered normally (adjusted OR= 2.1, 95%CI= 1.2-10.4). Women who did not have breastfeeding education were at higher risk of not practicing exclusive breastfeeding than those have it (adjusted OR=1.9, 95%CI=1.06-11.2). Work-related problems (46.2%), insufficient breast milk (34.2%), maternal health problems (14.9%) and neonatal health problems (9.7%) are the commonly reported barriers against exclusive breastfeeding.

**Conclusion:** Breastfeeding exclusivity among our sample is suboptimal, compared to the current WHO recommendations, despite the relatively higher level of knowledge. Irrespective of maternal educational status, many misconceptions are prevalent regarding breastfeeding practices that need special emphasis in health education campaigns.

**Key Words:** Breastfeeding; Exclusive; Prevalence; Knowledge; Attitude; Practice, Saudi Arabia

### Introduction

In developing countries, the lives of one million infants can be saved each year just by promoting breastfeeding. In addition to the great nutritional and psychological values, breast milk contains antibodies that help protect the baby against many common childhood diseases. It is clean, always at the right temperature, inexpensive and nearly every mother has more than enough of this high quality food for her baby. Breastfeeding is the ideal method suited for the physiological and psychological needs of an infant.<sup>[1]</sup>

The key to successful breastfeeding is Information, Education and Communication strategies aimed at behavior change. For such a promotional campaign to be effective, attitudes and practices of health providers must be improved.<sup>[2]</sup> Exclusive breastfeeding stands out as the single most effective intervention for child survival.<sup>[3]</sup> Universalizing early (within one hour) and

exclusive breastfeeding for 6 months, is viewed as a major public health intervention to reduce the child mortality, particularly, in the neonates and infants.<sup>[4,5]</sup>

Cantrill et al.<sup>[6]</sup> found that the level of basic breastfeeding knowledge of Australian midwives was adequate but there are deficits in key areas. They noted that knowledge variations by midwives may contribute to conflicting advice experienced by breast-feeding women. Factors that are positively associated with breastfeeding at six months include a very strong desire to breastfeed, having been breastfed oneself as a baby, and being older. On the other hand, factors that are negatively associated with feeding at six months include a woman having no intention to breastfeed for six months or more, baby receiving formula while in hospital, smoking 20 or more cigarettes per day before pregnancy, not attending childbirth education sessions, and having self-reported anxiety or depression which was a problem in the six months after birth.<sup>[7]</sup>

Interventions that seek to increase breastfeeding should consider focusing on women who are most at risk of early discontinuation of breastfeeding. Lack of knowledge, non-supportive behaviours and attitudes of maternity nurses, inconsistent advice, and minimal prenatal encouragement to breastfeed have been cited as barriers to breastfeeding.<sup>[8]</sup> Some nurses and physicians are less than supportive of breastfeeding and tend to encourage mothers to supplement with formula or to give up altogether if they experience difficulties with breastfeeding.<sup>[9]</sup>

Humenick et al.<sup>[10]</sup> noted that, across disciplines, inadequate professional support for breastfeeding has been identified in the literature. They also stated that: "The adequacy of health professionals' performance in the promotion of breastfeeding has been questioned repeatedly".

Richard et al.<sup>[11]</sup> reported that physicians have significant educational needs in the area of breastfeeding management. Breastfeeding offers numerous health advantages to children, mothers, families, and society. The American Academy of Pediatrics calls for enthusiastic support and involvement of paediatricians in the promotion and practice of breastfeeding.

Al-Binali<sup>[12]</sup> stated that the published data addressing the issue of the knowledge, attitudes and practice of female workers toward breast feeding in Saudi Arabia are scarce.

The current study aimed to assess the knowledge, attitude and practice regarding exclusive breastfeeding among mothers in Abha City, Saudi Arabia.

## Materials and Methods

### Operational definition of exclusive breastfeeding:

Exclusive breastfeeding is defined in this study as the practice of giving the infant breast milk without any additional food or drink, including water.<sup>[13]</sup>

**Table-1: Number of registered women in each PHCC**

PHC Center	Registered women
Al-Manhal	10406
Al-Qabel	6219
Shamasan	9574
Al-Numees	14238
Al-Azeezeya	4500
Thera	5313
Total	50250

The present cross-sectional study was conducted in Abha City, which is the capital of Aseer Region in KSA. There

are six primary health care centers (PHCCs) in Abha City, which provide both preventive and curative services to a total of 50250 women. The table 1 describes the total number of registered women in each PHCC.<sup>[14]</sup>

All mothers, who have a child aged 6-12 months, attending primary health care centers within the Abha city constitute the study population. The minimum sample size for this study has been decided according to Swinscow<sup>[15]</sup>, as follows:

$N = (Z^2 \times P \times Q) / D^2$  Where, N: Calculated sample size; Z: The z-value for the selected level of confidence (1-  $\alpha$ ) = 1.96; P: Since the research does not know exactly the value of this proportion, an estimated prevalence of exclusive breast feeding in the population = 50%, i.e., 0.5. Q: (1 - P) = 50%, i.e., 0.5; D: The maximum acceptable error = 0.04.

So, the calculated minimum sample size was:

$$N = [(1.96)^2 \times 0.5 \times 0.5] / (0.04)^2 = 600$$

Following a consecutive sampling technique, at least 600 mothers attending PHCCs in Abha City were interviewed by the researcher. At least 100 mothers were interviewed within each one of the above-mentioned six PHCCs.

The researcher constructed a data collection sheet. It was mainly adapted from Alina et al. <sup>[13]</sup> and Khassawneh et al.<sup>[16]</sup> The questionnaire was translated into Arabic by the researcher. A committee of 3 consultants of family physicians revised the study questionnaire (face validation).

It is in simple Arabic Language. It comprises 3 parts as follows: personal characteristics: Age of mother, age of child, number of children, nationality, employment status, husband's occupation, education of mother, education of husband, mode of delivery, receiving health education about breastfeeding. Knowledge about breast feeding: It includes 38 items, covering the following scopes of knowledge on breastfeeding: general knowledge, colostrum, advantages to mothers and babies, effective feeding method, duration of feeding, complementary feeding, problems with breastfeeding. Each item had categorical responses of yes, no, or do not know. A correct response will be scored as '1', whereas a wrong or do not know response will be scored as '0'. Total knowledge score range from 0 to 38, with higher scores indicating more knowledge. Knowledge of

mothers whose scores are less than 50% (i.e., <19) was considered as “unsatisfactory”, 50% to <75% (i.e., 19-28) was considered “good”, while mothers’ knowledge scores 75% or more (i.e., 29-38) was considered as “excellent”. Attitude toward breastfeeding: It includes 9 statements with five-point Likert rating scale, from “strongly disagree” to “strongly agree” are used to assess women's attitude to breastfeeding, covering respondents’ attitude toward mother's comfort with breastfeeding, cost, effect on care of other family members and effect on marital relationship. Items that tested community's attitude toward breastfeeding, duration of maternity leave and facilitation of breastfeeding at work places. The original Likert rating scale was converted to a numeric scale (i.e., 1, 2, 3, 4, and 5), with a higher score indicates a higher participant's agreement with the item tested. The total score has been computed and attitude scores were arbitrarily classified at 2 levels: positive (score of 33.75 “75% of the total score of 45” and above) and negative (score less than 33.75). Pattern of feeding practices during the first 6 months of her baby’s life, (whether the mother exclusively breastfed her baby or not). Those who did not breastfeed their babies were asked about reasons for that.

A pilot study was done on 20 mothers to test the wording and clarity of the questions. Test-retest reliability was calculated. An average correlation coefficient of 0.91 has been obtained. The results of this pilot study helped in re-phrasing, adding or omitting some questions. The collected data within the pilot study were not included into the main study.

By the end of the interview, all participants received a health education session addressed to them by the researcher on importance of breastfeeding and proper breastfeeding practices.

### Statistical Analysis

Statistical Package for Social Sciences (SPSS) software version 19.0 was used for data entry and analysis. Descriptive statistics (number, percentage for categorical variables and mean, standard deviation and range for continuous variables) and analytic statistics using Chi Square tests ( $\chi^2$ ) to test for the association and/or the difference between two categorical variables were applied. P-value equal or less than 0.05 was considered statistically significant.

Practicing exclusive breastfeeding was treated as dependent variable in multivariate logistic regression

analysis. Mother’s education, mother’s job, husband’s job, mode of delivery, breastfeeding education and breastfeeding knowledge were treated as independent categorical variables. Multiple associations were evaluated in multiple logistic regression model based on the backward stepwise selection, where significant variables from the univariate analysis were included. The procedure allowed the estimation of the strength of the association between each independent variable while taking into account the potential confounding effects of the other independent variables. The covariates were removed from the model if the likelihood ratio statistic based on the maximum likelihood estimates had a probability of >0.1. Each category of the predictor variables was contrasted with the initial (reference) category. The adjusted measure of association between determinant factors and practicing exclusive breast-feeding was expressed as the odds ratio (OR) with 95% Confidence Interval (95% CI). Adjusted or crude ORs with 95% CI that did not include 1.0 were considered significant.

## Results

### Baseline Characteristics of the Participants

A total of 600 women, with children aged between 6 months and 12 months, from those registered in PHCC in Abha were included in the study. Their socio-demographic characteristics are presented in table 2. Their age ranged between 18 and 47 years with a mean of  $31.4 \pm 5$  years. In almost two-thirds of them (66%), the infant age ranged between 6 and 9 months. Most of them were Saudi (88.2%) and university graduated (78.7%). Among more than half of them (57.3%), the husbands were university graduated. One-hundred and thirty-six (22.7%) were house wives while three hundreds and four (50.8%) were governmental employees. Governmental job was reported among 55.4% of their husbands. Number of children was more than three in 22% of them. Normal vaginal delivery was reported by almost two thirds of them (67.5%) while caesarean section was reported by the remaining 32.5% of the participated women.

### Breastfeeding Knowledge

Health education regarding breastfeeding was received by almost two-thirds (65.7%) of the women participated in the study. Physicians were the main providers of breastfeeding health education (55.6%) followed by nurses (29.9%) and finally other sources e. g. mothers, internet, books, magazines (20.1%).

**Table-2: Socio-demographic characteristics of the participants (n=600)**

Socio-Demographic Data		N	%
Age in years	≤25	64	10.7
	26-35	432	72.2
	>35	104	17.3
	Range	18-47	
	Mean ± SD	31.4 ± 5.0	
Infant's age in months	≤9	396	66
	>9	204	34
Nationality	Saudi	529	88.2
	Non-Saudi	71	11.8
Educational level	≤primary	32	5.3
	Intermediate-secondary	96	16
	University	472	78.7
Husband's educational level	≤primary	52	8.7
	Intermediate-secondary	204	34
	University	344	57.3
Job	House wife	136	22.7
	Governmental	304	50.8
	Private	160	26.7
Husband's job	Governmental	332	55.4
	Private	80	13.3
	Military	116	19.3
	Retired	28	4.7
	Manual	44	7.3
Number of children	One	160	26.7
	02-Mar	308	51.3
	>3	132	22

Table 3 shows that the majority of mothers were aware of the benefits of the breastfeeding in causing good development of baby's teeth and gum (92%), increasing the baby's intelligence (84.7%) and helping to reduce the incidence of child abuse and neglect (84%). In addition, most of them recognized correctly that breastfeeding reduces the risk of respiratory infection among babies (74.7%) and baby who received breastfeeding is less prone to get diarrhea (74%). Regarding benefits of breastfeeding to the mothers, the majority of the participants were aware that frequent breastfeeding may prevent breast engorgement (95.3%), helps to stimulate uterine contraction (88%) and mothers who practiced breastfeeding may achieve pre-pregnancy weight faster (80%). Only 48.7% of them answered that breastfeeding may protect against osteoporosis. It is evident that the knowledge of participated mothers regarding colostrums is insufficient except its definition where 82.7% of them properly answered that it is the mother's early milk, which is thick, sticky, and yellowish in colour.

In addition, table 3 shows that the knowledge of mothers regarding effective breastfeeding is sufficient as more than 80% of them were aware that babies will gain weight if they receive effective feeding; correct positioning helps to achieve effective breastfeeding and babies sleep well after they receive adequate breastfeeding.

**Table-3: Knowledge regarding breastfeeding among participants**

Statements	Right Answer	
	N	%
<b>Benefits to babies</b>		
Breastfeeding reduces the risk of respiratory infection among babies	448	74.7
Breastfeeding increases the baby's intelligence	508	84.7
Breastfeeding helps to reduce the incidence of child abuse and neglect	504	84.0
Baby who received breastfeeding is less prone to get diarrhea	444	74.0
Breast milk provides baby with more protection from allergy compared to formula milk	384	64.0
Breastfeeding causes good development of baby's teeth and gum	552	92.0
<b>Benefits to mothers</b>		
Exclusive breastfeeding is beneficial in spacing birth	460	76.7
Breastfeeding helps to stimulate uterine contraction	528	88.0
Mothers who practiced breastfeeding may achieve pre-pregnancy weight faster	480	80.0
Frequent breastfeeding may prevent breast engorgement	572	95.3
Mother who practiced breastfeeding has a low risk of getting breast cancer	448	74.7
Breastfeeding may protect against osteoporosis	292	48.7
<b>Colostrum</b>		
Colostrum is the mother's early milk, which is thick, sticky, and yellowish in colour	496	82.7
Colostrum is difficult to digest and needs to be discarded	312	52.0
Colostrum causes constipation among babies	312	52.0
Colostrum is not able to protect babies from jaundice	240	40.0
<b>Effective feeding</b>		
Babies will gain weight if they receive effective feeding	492	82.0
Correct positioning helps to achieve effective breastfeeding	536	89.3
Babies sleep well after they receive adequate breastfeeding	532	88.7
<b>Duration of feeding</b>		
Breastfeeding should be initiated within 30 minutes after delivery	332	55.3
Breastfeeding should be given on demand	340	56.7
Baby should be allowed to breastfeed for at least 10-20 minutes for each feeding	396	66.0
Breastfeeding should be continued up to 2 years even though the baby has received complementary food	488	81.3
<b>Complementary feeding</b>		
Complementary feeding should be introduced at 6 months of age	536	89.3
Mothers may mix breastfeeding and formula feeding once baby starts taking complementary food	492	82.0
<b>Effective feeding</b>		
Babies will gain weight if they receive effective feeding	492	82.0
Correct positioning helps to achieve effective breastfeeding	536	89.3
<b>Problems</b>		
Breast milk production is influenced by breast size	336	56.0
Mothers with inverted nipples cannot breastfeed their babies	152	25.3
Breastfeeding must be discontinued if mother has cracked nipple	268	44.7
Breastfeeding must be discontinued if baby has jaundice	272	45.3
Breastfeeding must be discontinued if mother has breast engorgement	204	34.0
Breast engorgement may be reduced with cold packs	172	28.7
<b>Practical aspects</b>		
Exclusive breastfeeding must be practiced until the infant is 6 months old	452	75.3
Massage may reduce breast engorgement	452	75.3
Giving water to baby is encouraged after every breastfeeding	264	44.0
Belching after feeding shows that the baby is full	448	74.7
Babies who get enough feeding will pass urine more frequently	388	64.7
Oral thrush frequently happens to babies who breastfeed	236	39.3

**Table-4: Attitude of mothers towards breastfeeding**

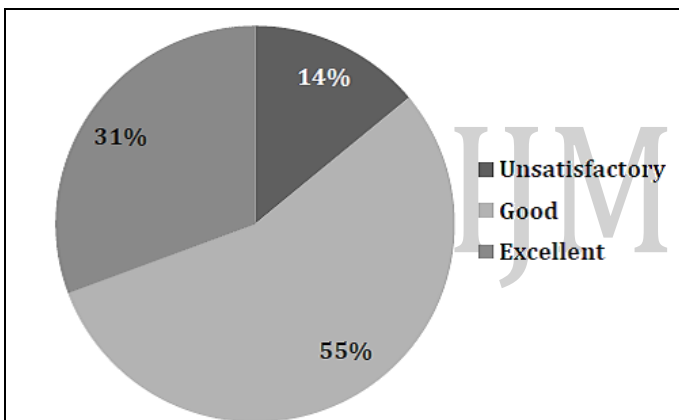
Statements	Strongly agree N (%)	Agree N (%)	Not sure N (%)	Disagree N (%)	Strongly disagree N (%)
Breastfeeding is easier than artificial feeding	316 (52.7)	176 (29.3)	36 (6.0)	48 (8.0)	24 (4.0)
It is difficult for breast feeder to take care of her family	40 (6.7)	152 (25.3)	40 (6.7)	276 (46.0)	92 (15.3)
Breastfeeding has no effect on marital relationship	136 (22.7)	208 (34.7)	88 (14.7)	124 (20.7)	44 (7.3)
Breastfeeding reduces family expenses	260 (43.3)	228 (38.0)	60 (10.0)	28 (4.7)	24 (4.0)
Artificial feeding preserves woman's body and prevents obesity	96 (16.0)	128 (21.3)	152 (25.4)	120 (20.0)	104 (17.3)
The community prefers breastfeeding over artificial feeding	220 (36.7)	196 (32.7)	80 (13.3)	88 (14.6)	16 (2.7)
Healthcare workers encourages breastfeeding	404 (67.3)	144 (24.0)	16 (2.7)	20 (3.3)	16 (2.7)
*A vacation for 3 months is enough for successful breastfeeding	174 (37.5)	54 (11.6)	48 (10.3)	92 (19.8)	96 (20.8)
*Work places offer suitable private places for breastfeeding	76 (16.4)	42 (9.0)	152 (32.8)	140 (30.2)	54.0 (11.6)

\*Only for working mothers (464)

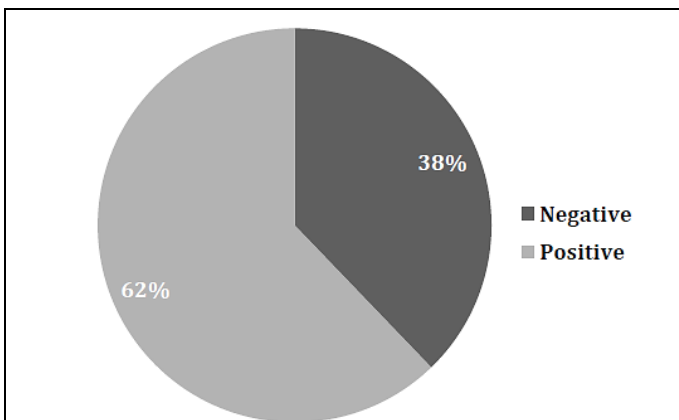
**Table-5: Determinants for non-practicing exclusive breastfeeding: Results of multivariate Logistic Regression Analyses**

Variables	Adjusted OR	95% CI	
Mother's job	House wife @ (n=136)	1	
	Governmental (n=304)	1.9	1.02-4.3*
	Private (n=160)	1.8	0.9-5.4
Mode of delivery	Normal vaginal @	1	
	Caesarean section	2.1	1.2-10.4*
Health education	Yes @	1	
	No	1.9	1.06-11.2*

@ Reference category; \* P ≤ 0.05; NA: not applicable. Variable removed from the model (not significant): mother's education, husband's job and breastfeeding knowledge.



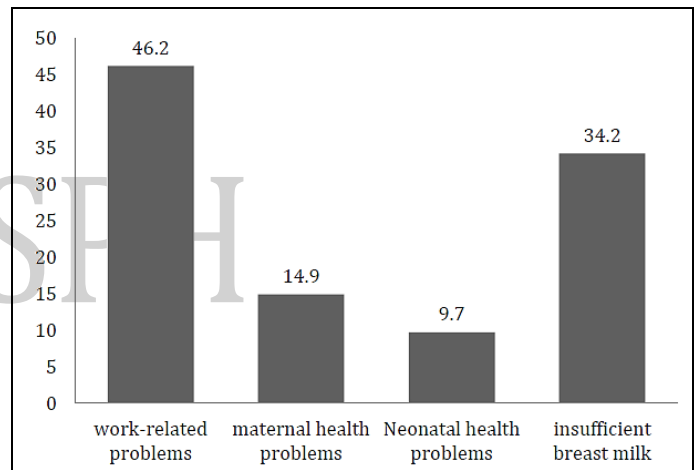
**Figure-1: Level of breastfeeding knowledge among mothers, Abha PHCC**



**Figure-2: Mothers' attitude towards breastfeeding, Abha PHCC**

On the other hand, their knowledge regarding breastfeeding duration is insufficient (ranged between 55.3% to 66%) except for the fact that breastfeeding

should be continued up to 2 years even though the baby has received complementary food (81.3%). Their knowledge regarding complementary feeding is sufficient as 89.3% of them were aware that complementary feeding should be introduced at 6 months of age while 82% recognized that they may mix breastfeeding and formula feeding once baby starts taking complementary food.



**Figure-3: Barriers against exclusive breast feeding**

It is evident from table 3 that the mothers' knowledge regarding problems with breastfeeding is insufficient. For example, only 34% answered that breastfeeding must be continued if mother has breast engorgement, 45.3% answered that breastfeeding must be continued if baby has jaundice and 28.7% reported that breast engorgement may be reduced with hot packs.

As shown in table 3, the knowledge of mothers regarding practical aspects of breastfeeding is sufficient in some of them as exclusive breastfeeding must be practiced until the infant is 6 months old (75.3%), massage may reduce breast engorgement (75.3%) and belching after feeding shows that the baby is full (74.7%) while it was insufficient in other aspects as giving water to baby is encouraged after every breastfeeding (44%) and oral thrush frequently happens to babies who breastfeed (39.3%).

Overall, the knowledge score of mothers regarding breastfeeding ranged between 4 and 35 with a mean of  $24.8 \pm 5.9$ . Figure 1 demonstrates that overall mothers' breastfeeding knowledge was good among more than half of them (55.3%) and excellent among 30.7% of them while it was unsatisfactory among 14% of the mothers.

### Mothers' Attitude towards Breastfeeding

From table 4, it is clear that most of mothers agreed that healthcare workers encourages breastfeeding (91.3%), breastfeeding is easier than artificial feeding (82%) and it reduces family expenses (81.3%). More than half of them (57.1%) agreed that breastfeeding has no effect on marital relationship and almost half of working mothers (49.1%) agreed that a vacation for 3 months is enough for successful breastfeeding. Among working mothers, 41.8% disagreed that work places offer suitable private places for breastfeeding. Overall, the mothers' breastfeeding attitude score ranged between 22 and 44 with a mean of  $34.1 \pm 4.2$ . Figure 2 displays that positive attitude towards breastfeeding was reported among 62.2% of the participants while negative attitude was reported among more than one-third of them (37.8%).

### Breastfeeding Practice

Breastfeeding in the first 6 months was practiced by 24.7% of the participated mothers. Only 7.3% practiced exclusive breast feeding. Among those who breastfed their babies, 83.8% initiated breastfeeding in the first day of birth and only 16.2% initiated it after that.

### Determinants of Exclusive Breast Feeding

In the multivariate analysis, governmental workers had significant double probability of not practicing exclusive breastfeeding as opposed to house wives (adjusted OR= 1.9, 95%CI= 1.02-4.3). Women delivered by caesarean section were at double risk for non-practicing exclusive breastfeeding compared to those delivered normally (adjusted OR= 2.1, 95%CI= 1.2-10.4). Women who did not have breastfeeding education were at higher risk of not practicing exclusive breastfeeding than those have it (adjusted OR = 1.9, 95%CI = 1.06-11.2). Mother's education, husband's job and breastfeeding knowledge were removed from the final logistic regression model. (Table 5)

### Barriers to Exclusive Breast Feeding

As obvious from figure 3, work-related problems (46.2%), insufficient breast milk (34.2%), maternal

health problems (14.9%) and neonatal health problems (9.7%) are the commonly reported barriers against exclusive breastfeeding.

## Discussion

Exclusive breastfeeding for the first 6 months of life improves the growth, health and survival status of newborns<sup>[17]</sup> and is one of the most natural and best forms of preventive medicine.<sup>[18]</sup> Exclusive breastfeeding plays a pivotal role in determining the optimal health and development of infants, and is associated with a decreased risk for many early-life diseases and conditions, including otitis media, respiratory tract infection, diarrhea and early childhood obesity.<sup>[19]</sup>

Currently the recommendations from the global strategy for infant and young child feeding, developed by the World Health Organization and UNICEF, is that infants should be exclusively breastfed for the first 6 months of life.<sup>[18]</sup> Still, less than 40% of infants under 6 months of age in the developing world are exclusively breastfed.<sup>[20]</sup> Despite the great advances in health services in Saudi Arabia, studies have reported a downward trend in breastfeeding practice.<sup>[21-24]</sup> In this study 24.7% of infants were breastfed till the age of 6 months. However, only 7.3 were exclusively breastfed and among Saudi women, it was 6.8%. Much lower rates were reported from other regions of Saudi Arabia. In Riyadh only 0.8% of infants were exclusively breastfed for the first 4-6 months,<sup>[21]</sup> and the rate rises to 1.7% among infants at the age of 6 months in Jeddah.<sup>[25]</sup> Higher rates of 24.4%, 27.3% and 33.1% were reported in Al-Hassa,<sup>[26]</sup> Al-Kharj<sup>[23]</sup> and in Dammam,<sup>[27]</sup> respectively.

In Abha, KSA, Al-Binali<sup>[12]</sup> reported that breastfeeding rate at 6 months among working mothers in Abha, was 15.9% and bottle feeding was started, based on a provisional advice, in 56.7%.

The rate of exclusive breastfeeding varies in Middle Eastern countries. In Al-Ain, United Arab Emirates, only 4% of mothers practiced exclusive breastfeeding during the first month of their infants' lives.<sup>[28]</sup> In Iran, a recent study reported that 82% of infants were exclusively breastfed during the first month of life, but this statistic decreased to 44% and 2% at the ages of 4 and 6 months, respectively.<sup>[29]</sup> A more recent study in Iran reported rates of 56.8% and 27.7% at 4 and 6 months of age, respectively, at the national level.<sup>[30]</sup> In Aqaba, Jordan, the exclusive breastfeeding rate was 46% for infants in the first 6 months of life.<sup>[31]</sup> In Egypt a rate of 42.5% was

reported among infants less than 4 months of age.<sup>[32]</sup> A study in Bangladesh reported an exclusive breastfeeding rate of 53% at 1 month and then a gradual decline to 5% at 6 months of age.<sup>[33]</sup> A recent study in Bangladesh showed that this rate gradually declined from 87.1% at 1 month to 77.2% at 3 months and 61.4% at 6 months.<sup>[34]</sup> In the United States, only 13.3% of infants were exclusively breastfed at 6 months of age.<sup>[35]</sup> It has been commented that exclusive breastfeeding in the first 4 months of life varies from 1% to 90%, depending on where the baby is born; this variability is influenced by cultural beliefs, socioeconomic status, ethnicity, education, urbanization, modernization, and local feeding practices.<sup>[36,37]</sup>

These figures as well as ours are low compared to those reported from the developed world; for example, at 4–6 months, in Luxembourg 54% of mothers exclusively breastfed their newborns, in The Netherlands 37% and in Austria 46%.<sup>[38]</sup>

In the current study, maternal work was a significant determinant for non-practicing exclusive breastfeeding as revealed by logistic regression analysis. Despite the fact that Saudi women do not work in hazardous occupations, a mother's work per se does adversely affect breastfeeding practice. Breastfeeding and working outside home are commonly believed to be incompatible activities, and maternal employment has long been considered a barrier to successful breastfeeding.<sup>[39]</sup> Because of the short period of paid maternal leave (only 2 months) in Saudi Arabia, only 5% of mothers were able to exclusively breastfed their infants at the age of 6 months. A similar negative effect of maternal work on exclusive breastfeeding has been reported by many studies in different cultures.<sup>[16,40-42]</sup> However, other studies have reported no effect of maternal work on exclusive breastfeeding.<sup>[43,44]</sup>

Furthermore, in developing countries demonstrating population transition with increasing urbanization, women achieving higher levels of formal education and more working outside of their households are expected to witness a decrease in the practice and duration of breastfeeding across time,<sup>[45,46]</sup> a scenario that is applicable to the Saudi Arabian community where women account for 55% of university graduates and the urban population represents 82% of the total with a rate of urbanization equals to 2.5% annual rate of change (for the years 2005–2010) and ranked 39th in the global rank of urbanization in the year 2009.<sup>[57]</sup> In the current study,

university graduated mothers approaching 79%.

In addition, there is a change in the status of Saudi women in response to the socioeconomic advancement with more educational and employment opportunities; for instance, the male to female ratio for students at universities changed considerably over a period of a few years from one to over two women for every man with a dramatic increase in literacy among females in a very short period.<sup>[48]</sup> Also, there is a change in the roles of women in contemporary Gulf societies. Women's traditional monorole of marriage and mothering has changed to multirole models and more outdoor socialization; they choose to pursue higher education and careers and are less accepting of having their roles restricted to motherhood. More schooling is associated with shorter breastfeeding<sup>[45,46]</sup>; however, this differential is decreasing over time in some developing and most developed countries, where the direction of this association is already reversed. Women in the United States and other industrialized nations with higher levels of education have improved breastfeeding outcomes compared to their less educated counterparts.<sup>[45,46,49]</sup> However, in the present study, although not significant in multivariate analysis, lower educated women practiced exclusive breastfeeding more than higher educated women.

Significant social implications that act as barriers to breastfeeding for employed women in Saudi Arabia and the Gulf countries include embarrassment at breastfeeding before others, even of the same gender,<sup>[50]</sup> fears of the evil eye<sup>[16]</sup> (superstitious fears of envy of the lactating woman with inflicting injury or bad luck, including refusal of breastfeeding, cessation of milk flow, or disease for the nursing infant), lack of special facilities such as lactation rooms, inconvenience, and isolation.<sup>[51]</sup> Furthermore, in Saudi society, breastfeeding in public is considered a taboo, and it is prohibited<sup>[52]</sup>, with the lack of family support that can overshadow the unquestionable benefits of breastfeeding.<sup>[51]</sup> Additional constraint for employed women includes the relatively short maternity leave (about 10 weeks in the governmental sector), which may force Saudi women to hire foreign maids or nannies who often do much of the work of child rearing and feeding. Breastfeeding sometimes is rejected for not being modern, especially among those of higher socioeconomic status.<sup>[50,53]</sup> For breastfeeding interventions to be successful, public perceptions and societal norms that shape the women's decisions to initiate and continue breastfeeding should

be explored.<sup>[54,55]</sup>

We found that operative delivery adversely affects the adoption of exclusive breastfeeding in comparison with spontaneous vaginal delivery. Previous studies reported the negative effect of caesarean section on exclusive breastfeeding.<sup>[56-59]</sup> Other studies did not find such association.<sup>[60,61]</sup>

The other feature that is independently associated with more likelihood of exclusive breastfeeding is having breastfeeding education. Studies in Egypt and China have reported the same finding;<sup>[39,56]</sup> however, another study from Iran reported no significant differences.<sup>[30]</sup>

Trussel et al<sup>[62]</sup> found that children of women with higher parity tended to breastfeed the longest; those with seven or more children were twice as likely to breastfed their children as women with firstborn children. Our results failed to confirm such association between number of children and practicing exclusive breastfeeding.

In the present research, work-related difficulties were reported by 46.2% of women as a reason for no practicing of exclusive breast feeding. In Abha, the main reason for stopping breastfeeding 'in 45.7% was work related difficulties.<sup>[12]</sup>

The associations of the above factors with exclusive breastfeeding at 6 months are difficult to explain and need further in-depth anthropological and cultural studies to be understood. It is possible that these factors, individually or in combination, may affect feeding strategies and attitude towards exclusive breastfeeding for infants of any age.

This study includes only mothers attending for vaccination at PHCCs in one region of the Saudi Arabia, and the results may not be representative of the whole nation. In addition, the study findings merely convey associations rather than inferences because of the study design adopted; a prospective cohort design would be more appropriate.

## Conclusion

Conclusively, breastfeeding exclusivity among our sample is suboptimal, compared to the current WHO recommendations, despite the relatively higher level of knowledge.

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## References

1. Subbiah N. A Study to assess the knowledge, attitude, practice and problems of postnatal mothers regarding breastfeeding. *Nursing J Ind* 2003; 94 (8): 177-79.
2. Dadhich JP, Gupta A. Assessment of Status of Infant and Young Child Feeding (IYCF) practice, policy and program-Achievements and Gaps. Breast feeding promotion network of India, 2005.
3. Bhutta ZA, Ahmed T, Black RE, Cousens S, Dewey K, Giugliani E, et al. What works? Interventions for maternal and child under nutrition and survival. *Lancet* 371: 417-40, 2008.
4. Darmstadt GL, Bhutta ZA, Cousens S, Adam T, Walker N de BL. Evidence-based, cost-effective interventions: how many newborn babies can we save? *Lancet* 365: 977-88, 2005.
5. Edmond KM, Zandoh C., Quigley MA., Amenga-Etego S., Owusu-Agyei S, Kirkwood BR. Delayed breastfeeding initiation increases risk of neonatal mortality. *Pediatrics* 2006; 117: e380-6.
6. Cantrill RM, Creedy DK, Cooke M. An Australian study of midwives' breast-feeding knowledge. *Midwifery* 2003; 19, 310-17.
7. Forster DA., McLachlan HL, Lumley J. Factors associated with breastfeeding at six months postpartum in a group of Australian women. *International Breastfeeding Journal* 2006; 1:18.
8. Sable MR, Patton CB. Prenatal Lactation Advice and Intention to Breastfeed: Selected Maternal Characteristics. *J Hum Lact* 1998; 14 (1), 35-40.
9. Hila JS. Nurses' attitudes, knowledge, and beliefs related to the promotion of breastfeeding among women who bear children during adolescence. *J Pediatr Nursing* 2004; 19(3):176-83.
10. Humenick SS, Hill P, Spiegelberg P. Breastfeeding and Health Professional Encouragement. *J Hum Lact* 1998; 14(4): 305-10.
11. Richard S, O'Connor K, Ruth L. Pediatricians Practices and Attitudes Regarding Breastfeeding Promotion, *Pediatrics* 1999; 103(3):1-5.
12. Al-Binali AM. Knowledge, Attitude and Practice of Breastfeeding among Female Health Care Workers in Tertiary Care Hospitals. *The Medical Journal of Cairo University*, 2011; 79(4):361-7.
13. Alina T, Ismail T, Sulaiman Z. Reliability and validity of a Malay-version questionnaire assessing knowledge of breastfeeding. *Malaysian J Med Sci* 2010; 17(3): 32-39.
14. Aseer Directorate of Health, Personal Communication, 2012
15. Swinscow TDV. *TDV. Statistics at Square One.* 9<sup>th</sup> edn. London: British Medical Association; 1997.
16. Khassawneh M, Khader Y, Amarin Z, Alkafajei A. Knowledge, attitude and practice of breastfeeding in the north of Jordan: a cross-sectional study. *Int Breastfeed J* 2006, 1:17
17. World Health Organization: Indicators for assessing infant and young child feeding practices. Washington DC, USA: WHO; 2008
18. World Health Organization: The Global Strategy for Infant and Young Child Feeding. Geneva: WHO; 2003.
19. Agho KE, Dibley MJ, ODiase J, Ogbonmwan SM. Determinants of exclusive breastfeeding in Nigeria. *BMC Pregnancy Childbirth* 2011, 11:2.
20. UNICEF: Maternal and Newborn Health. The State of the sowc08/docs/sowc08.pdf (accessed September 2010).
21. Al-Jassir MS, El-Bashir BM, Moizuddin SK. Surveillance of infant feeding practices in Riyadh City. *Ann Saudi Med* 2004, 24(2):136-140.
22. Al-Shehri SN, Farag MK, Baldo MH, et al. Overview on breastfeeding pattern in Saudi Arabia. *J Trop Pediatr* 1995; 41 (Suppl 1):S38-S44.
23. Ogbiede DO, Siddiqui S, Al-Khalifa IM, et al. Breastfeeding in a



- Saudi Arabian community: Profile of parents and influencing factors. *Saudi Med J* 2004; 25:580–584.
24. Shawky S, Abalkhail BA. Maternal factors associated with the duration of breastfeeding in Jeddah, Saudi Arabia. *Pediatr Perinatal Epidemiol* 2003; 17:91–96.
  25. Al-Hreashy FA, Tamim HM, Al-Baz N, Al-Kharji NH, Al-Amer A, Al-Ajmi H, et al. Patterns of breastfeeding practice during the first 6 months of life in Saudi Arabia. *Saudi Med J* 2008; 29:427–431.
  26. El-Gilany A, Shady E, Helal R. Exclusive Breastfeeding in Al-Hassa, Saudi Arabia. *Breastfeeding Medicine* 2011; 6(4):209–213
  27. Qadri MH, Al-Harfi RA, Al-Gamdi MA. Breastfeeding practice in Dammam area of Saudi Arabia. *J Saudi Soc Family Community Med* 1998; 5:59–64.
  28. al-Mazroui MJ, Oyejide CO, Bener A, Cheema MY. Breastfeeding and supplemental feeding for neonates in Al-Ain, United Arab Emirates. *J Trop Pediatr* 1997;43:304–306.
  29. Koosha A, Hashemifesharaki R, Mousavinasab N. Breastfeeding patterns and factors determining exclusive breastfeeding. *Singapore Med J* 2008;49:1002–1006.
  30. Olang B, Farivar K, Heidarzadeh A, Strandvik B, Yngve A. Breastfeeding in Iran: Prevalence, duration and current recommendations. *Int Breastfeed J* 2009;4:8.
  31. Amayreh W, Ghanma A, Al-Jbour W. Factors affecting infant feeding practices at Aqaba, South of Jordan. *Middle East J Nurs* 2007;1:12–13.
  32. El-Gilany A. Breastfeeding indicators in Dakahlia Governorate. *East Mediterr Health J* 2003;9:961–973.
  33. Arifeen S, Black RE, Antelman G, Baqui A, Caulfield L, Becker S. Exclusive breastfeeding reduces acute respiratory infection and diarrhea deaths among infants in Dhaka slums. *Pediatrics* 2001;108:e67.
  34. Mhrshahi S, Oddy WH, Peat JK, Kabir I. Association between infant feeding patterns and diarrheal, respiratory illness: A cohort study in Chittagong, Bangladesh. *Int Breastfeed J* 2008;3:28.
  35. Li R, Darling N, Maurice E, Barker L, Grummer-Strawn LM. Breastfeeding rates in the United States by characteristics of the child, mother, or family: The 2000 National Immunization Survey. *Pediatrics* 2005;115:e31–e37.
  36. UNICEF. Progress for Children: A Child Survival Report Card. 2004. [www.unicef.org/publications/files/29652L01.eng.pdf](http://www.unicef.org/publications/files/29652L01.eng.pdf) (accessed September 2010).
  37. Ergenekon-Ozelci P, Elmaci N, Ertem M, Saka G. Breastfeeding beliefs and practices among migrant mothers in slums in Diyarbakir, Turkey, 2001. *Eur J Public Health* 2006; 16:143–148.
  38. Yngve A, Sjostrom M. Breastfeeding in countries of the European Union and EFTA: Current and proposed recommendations, rationale, prevalence, duration and trends. *Public Health Nutr* 2001;4:631–645.
  39. El-Gilany A. Breastfeeding indicators in Dakahlia Governorate. *East Mediterr Health J* 2003;9:961–973.
  40. El-Gilany A, El-Wehady A. Maternal work and infant health in Al-Hassa, Saudi Arabia. *Paediatr Me* 2007;12(4):100–105.
  41. Tan KL. Factors associated with non-exclusive breastfeeding among 4-week post-partum mothers in Klang District, Peninsular Malaysia. *Mal J Nutr* 2009;15:11–18.
  42. Al-Sahab B, Lanes A, Feldman M, Tamim H. Prevalence and predictors of 6-months exclusive breastfeeding among Canadian women: A national survey. *BMC Pediatr* 2010;10:20.
  43. Chudasama RK, Amin CD, Parikh YN. Prevalence of exclusive breastfeeding and its determinants in first 6 months of life: A prospective study. *Online J Health Allied Sci* 2009;8(1). [www.ojhas.org/issue29/2009-1-3.htm](http://www.ojhas.org/issue29/2009-1-3.htm) (accessed September 2010).
  44. Petrova A, Ayers C, Stechna S, Gerling JA, Mehta R. Effectiveness of exclusive breastfeeding promotion in low-income mothers: A randomized controlled study. *Breastfeed Med* 2009;4:63–69.
  45. Pe' rez-Escamilla R. Breastfeeding and the nutritional transition in the Latin American and Caribbean Region: A success story? *Cad Saude Publica* 2003;19(Suppl 1):S119–S127.
  46. Monteiro CA, Conde WL, Popkin BM. Independent effects of income and education on the risk of obesity in the Brazilian adult population. *J Nutr* 2001;131:881S–886S.
  47. Central Intelligence Agency. World Fact Book. [www.cia.gov/library/publications/theworldfactbook/fields/2212.html](http://www.cia.gov/library/publications/theworldfactbook/fields/2212.html) (accessed June 15, 2010).
  48. Ghubash R, Hamdi I, Bebbington E. The Dubai Community Psychiatric Survey: I. Prevalence and socio-demographic correlates. *Social Psychiatry Psychiatr Epidemiol* 1992;37:53–61.
  49. Mhrshahi S, Oddy WH, Peat JK, Kabir I. Association between infant feeding patterns and diarrheal, respiratory illness: A cohort study in Chittagong, Bangladesh. *Int Breastfeed J* 2008; 3:28.
  50. Osman H, El Zein L, Wick L. Cultural beliefs that may discourage breastfeeding among Lebanese women: A qualitative analysis. *Int Breastfeed J* 2009;4:12.
  51. Al Sinani M. Breastfeeding in Oman—the way forward [abstract]. *Oman Med J* 2008. [www.omjournal.org/ReviewArticle/Fulltext/200810/BreastfeedingOmaThe.html](http://www.omjournal.org/ReviewArticle/Fulltext/200810/BreastfeedingOmaThe.html) (accessed June 1, 2010).
  52. Musaiger AO. Food habits and nutritional status of the family in the Arabian Gulf. In: *Arab Journal of Food and Nutrition*. Bahrain Centre for Studies and Research, Bahrain, 2001, p. 40.
  53. Al-Sahab B, Tamim H, Mumtaz G, Khawaja M, Khogali M, Afifi R. Predictors of breastfeeding in a developing country: Results of a prospective cohort study. *Public Health Nutr* 2008; 11:1350–1356.
  54. Al-Jassir MS, El-Bashir BM, Moizuddin SK, Abu-Nayan AAR. Infant feeding in Saudi Arabia: mothers' attitudes and practices. *Eastern Mediterranean Health Journal*, 2006; 12(1-2):6-13.
  55. Abdul Ameer AJ, Al-Hadi AH, Abdulla MM. Knowledge, attitudes and practice of Iraqi mothers and family childbearing women regarding breastfeeding. *Eastern MeditHealth J* 2008;14:1003–1014.
  56. Qiu L, Zhao Y, Binns CW, Lee AH, Xie X. Initiation of breastfeeding and prevalence of exclusive breastfeeding at hospital discharge in urban, suburban and rural areas of Zhejiang China. *Int Breastfeed J* 2009;4:1.
  57. Chandrashekhara TS, Joshi HS, Binu V, Shankar PR, Rana MS, Ramachandran U. Breastfeeding initiation and determinants of exclusive breastfeeding—A questionnaire survey in an urban population of Western Nepal. *Public Health Nutr* 2007;10:192–197.
  58. Islami Z, Razieh F, Golestan M, Shajaree A. Relationship between delivery type and successful breastfeeding [English abstract]. *Iran J Pediatr* 2008; 18(Suppl 1):37–52.
  59. Senyonga R, Muwonge R, Nankya I. Towards a better understanding of exclusive breastfeeding in the era of HIV / AIDS: A study of prevalence and factors associated with exclusive breastfeeding from birth, in Rakai, Uganda. *J Trop Pediatr* 2004;50:348–353.
  60. Agboado G, Michel E, Jackson E, Verma A. Factors associated with breastfeeding cessation in nursing mothers in a peer support programme in Eastern Lancashire. *BMC Pediatr* 2010;10:3.
  61. Patel RR, Liebling RE, Murphy DJ. Effect of operative delivery in the second stage of labor on breastfeeding success. *Birth* 2003;30:255–260.
  62. Trussel J, Grummer-Strawn L, Rodriguez G, Vanlandingham M. Trends and differentials in breastfeeding behaviour: Evidence from the WFS and DHS. *Population Studies* 1992; 46:285–307.

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