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Knowledge and Attitude of Exclusive Breast-Feeding Among Saudi Women in Primary Health Care Centers in Jeddah City, Saudi Arabia

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Abstract: *Breast-feeding has several health benefits for the infant and the mother as well. Exclusive breast-feeding (EBF) indicates that feeding a child only breast milk without any supplementation. However, medication or supplements are acceptable. Practicing EBF is based on women's knowledge as well as their attitude toward it. Low EBF rate among Saudi women is an alarming issue that needs an action by the health care providers.*
Study aim: *To assess knowledge levels and attitudes toward EBF among Saudi women in primary health care centers in Jeddah City, Saudi Arabia.*
Research question: *What are the knowledge and attitudes of exclusive breast-feeding among Saudi women in the primary health care centers in Jeddah.*
Design: *descriptive cross-sectional design Setting: Well-baby clinics of the primary health care centers, Jeddah city.*
Sampling: *Convenience sample including 315 Saudi women who had given birth to a live full-term healthy newborn during the last 12 months as infant age between 6 to 12 months. Data was collected over three months from May until July 2016.*
Tool: *A structured, interviewer-administered questionnaire consisted of seven parts was used to collect data. Part I: Woman's demographic and obstetrical data. Part II: Pattern of breast-feeding. Part III: Woman's knowledge regarding EBF. Part IV: Woman's attitude toward EBF.*
Results: *More than eighty percent of the infants received formula feeding. Not enough milk and back to school/work were the main reasons given by the women for stooping breast-feeding. More than half of the women were having moderate knowledge about EBF while the majority had neutral attitude towards EBF. Families and friends considered as the most EBF knowledge sources for the women.*
Conclusion and Recommendations: *The percentage of EBF was low despite high level of women education, while formula feeding was the predominant mode of feeding. Assessing women knowledge and attitude toward EBF helps healthcare professional to create educational programs that promote EBF practices among the childbearing women.*
Keywords: *Attitude, Exclusive breast-feeding, knowledge.*

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I. Introduction

1.1 Introduction

Islam stipulates breast-feeding through the child's first two years, appealing that the guiding principles of breast-feeding are clearly found in the Holy Qur'an: "mothers shall suckle their children for two whole years" (Al-Baqara, 2: 233). The World Health Organization (WHO, 2017) stated that exclusive breast-feeding (EBF) is essential for healthy growth and development in young infants. Breast milk is a fluid of great biological complexity (Packenpaugh, 2010; Lawrence & Lawrence, 2011). Exclusive breast-feeding has known to optimize the growth and development of the infant and has enormous range of short and long-term outcomes (Packenpaugh, 2010; Grodner, Roth, & Walkingshaw, 2012; Simpson & Creehan, 2013). Breast-feeding has several health benefits for both mother and infant (Packenpaugh, 2010; Simpson & Creehan, 2013; WHO, 2017). Breast milk provides the infant nutritional requirements during the first six months of life. It also protects against diarrhoea and common childhood illnesses such as pneumonia. It has longer-term health advantages for the child, such as lessening the risk of overweight and obesity in childhood and adolescence (Packenpaugh, 2010; Grodner et al., 2012; Shahbar, 2014; WHO, 2017). EBF indicates that feeding a child only breast milk without any supplementation. However, medication (e.g., vitamin or mineral supplements) are acceptable

(WHO, 2017). In 2001, the WHO recommended women to exclusively breastfeed their infants up to six months to reach ideal progress, development and health. Additionally, WHO encouraged women to continue breast-feeding along with complementary food which started at infant's age of six months up to two years. Subsequently, this recommendation was adopted by many worldwide organizations as American Academy of Pediatrics (AAP), the United Nation Children's Funds (UNICEF) and Ministry of Health (MOH) in Saudi Arabia (Shahbar, 2014; UNICEF, 2014; Bohren, Hofmeye, Sakala, Fukuzawa & Cuthbert, 2017).

Later, UNICEF (2014) mentioned that EBF not only helps children survival, but also helps in brain development and cognitive performance improvement. It is associated with better educational attainment at age of five. Breast-feeding allows children to grow and develop to their full potential (UNICEF, 2014; Al Jauid, Binns, Giglia, 2014). Even with all these benefits of EBF, many women stop it before six months of infant's age as reported by WHO (2017).

Many studies in Saudi Arabia showed the importance of breast-feeding education for Saudi women to improve the breast-feeding practice in the society (Al-Jassir et al., 2006; El-Mouzan et al., 2009; El-Gilany, 2010). Nurses are considered an important health care members as they are one of the largest health care providers who are involved in different levels of health care and represent the frontline for health care services (Shahbar, 2014). Nurses are one of the essential health care members who should be involved in caring for breast-feeding women through health promotion, education, structured coaching and consulting during antepartum and postpartum periods (Kemppainen, Tossavainen, &Turunen, 2013). Consequently, having structured breast-feeding programs in the public and private health care sectors would improve the women knowledge of breast-feeding and their practice accordingly (Mbwana, Conlon, & Hurst, 2013).

Practicing EBF is based on women knowledge as well as their attitude toward it, the researcher used the theory of planned behavior (TPB) as the framework to guid this research study. TPB delivers a framework for understanding human's behavior and its psychological elements. Basis of TPB consists of human behaviors, intentions, attitude, and norms (Knabe, 2012; Van Lang, Kruglanski, & Higgins, 2012). According to TPB, human actions are directed by behavioral, normative and control beliefs. Behavioral beliefs give a positive or negative attitude toward the action and normative beliefs provide subjective norms or perceived social pressure, while control beliefs escalate the perceived behavioral control (Knabe, 2012).

Given the declining rates of EBF in Saudi Arabia the aim of this research study is to assess women's knowledge of EBF and to gauge women's attitudes towards the practice which would assist nurses to provide better education and support with EBF.

1.2 Significance of the Problem

The World Health Organization estimates that around 220,000 children could be saved every year with EBF (WHO, 2017). Recent studies in Saudi Arabia showed a low rate of EBF among Saudi women (Al-binali, 2012; Fallis, 2013; Al-Jauid et al., 2014; Shahbar, 2014), although no recent study could be found on EBF in the Western province in particular. This study will assess the knowledge and attitude on EBF among Saudi women in Jeddah city. The results may serve as a current database of Saudi women's knowledge, attitude and practice of EBF to initiate structured breast-feeding programs in the primary health care centers (PHCCs) through disclosing the population learning needs. It would also help Jeddah hospitals that are planning to adopt BFHI principles to prepare education plans and strategies that will contribute to the attainment of BFHI requirements. In addition, study results would make recommendations towards the breast-feeding policies and procedures in many health care facilities. Lastly, this study may provide impetus for further investigation on EBF in the Western region of Saudi Arabia.

1.3 Aim of the Research

The main aim of this study is to assess knowledge and attitudes toward EBF among Saudi women in the primary health care centers in Jeddah City, Saudi Arabia.

II. Literature Review

2.1 Prevalence of Exclusive Breast-feeding

Internationally, less than 40% of infants are exclusively breast-fed during their first six months of life, and the majority receives some other food or fluids in their early infancy (WHO, 2017). Furthermore, although the rates of EBF are escalating in the United Kingdom (UNICEF, 2012; Bohren et al., 2017), the rates are inactive and low in the United States (Jones, Kogan, Singh, Dee, & Grummer-Strawn, 2011; CDC, 2013). According to a national survey (2007) in the United States , 75% of mothers initiated breast-feeding , and 33% of them were exclusively breast-fed their infants for the age of three months while it dropped to 13.3% at six months (CDC,2013; Simpson & Creehan, 2013). In developing countries, recent data reported the prevalence of EBF of infants less than six months as raised from 33% in 1995 to 39% in 2010 (Ca-Xiaodi, Wardlaw, & Brown, 2012; Al-Juaid et al., 2014). Rate of breast-feeding initiation is increased in almost all regions in the developing world, while the peak progress appeared in West and Central Africa as the prevalence of EBF has

doubled from 12% in 1995 to 28% in 2010. On other hand, uncertain improvements were seen in South Asia as from 40% in 1995 to 45% in 2010 (Ca-Xiaodi et al., 2012). Data from China was insufficient, thus there was no adequate data to indicate the prevalence of EBF for East Asia and Pacific. Apart from China, the prevalence of EBF in East Asia and Pacific still unchanged at almost 30% (Ca-Xiaodi et al., 2012; Al-Juaid et al., 2014). World Health Organization Statistics (2014) reported that more than 60% of women initiated breast-feeding, and 60% of women continue to breastfeed their infants up to 12 months in the Middle East and North Africa (MENA) countries.

In Lebanon, a national survey conducted on four hundred women found a high rate of breast-feeding initiation, however the rate of EBF was 52% at newborn infant aged of one month then it dramatically dropped to 10% at age of six months (Hamade et al., 2014). In Syria, UNICEF reported EBF prevalence as 43% of infants aged less than six months (Hamade et al., 2014). While in Yemen the mean rate of EBF at four months was 15%. Other countries such as Pakistan, and Iran the EBF rate were 16%, and 48% respectively (Dop et al., 1999; Al-Juaid et al., 2014). The Global Data Bank on infant and young child feeding (2009) reported low EBF rate at six months age in other countries such as Algeria, Sudan, and Egypt 6.9%, 15.6, and 30.3% respectively. In Jordan, a cross sectional study showed that 32% women breast-fed their infants exclusively until age of 6 months and 68% of them continued to breast-feed beyond 12 months (Khassawneh, Khader, Amarin, & Alkafajei, 2006). While in gulf countries a study in Emirate found that EBF rate for infants aged of six months reached to 13.3% (Radwan, 2013), and in Kuwait the rate of EBF was 15.2% according to the International Baby Food Action Network (IBFAN, 2013).

2.2 Exclusive Breast-feeding in Saudi Arabia

Saudi Arabia is using the WHO EBF definition as it indicated that EBF is feeding the infant with breast milk only, no other food or drink including water for the infant's first six months of life (WHO, 2014). The majority of the Saudi studies investigating breast-feeding have used the WHO definition of EBF (Al-Juaid et al., 2014; Shahbar, 2014). Saudi Arabia has been through massive business progress and rapid socio-economic changes. The socio-cultural changes has affected publics' routines, such as food habits, education, profession, and accommodation (Al-binali, 2012). One of the most significant changes is women getting an education and employment. Cost of everyday living encourage Saudi women to participate in labor filed to support themselves and their families which may affect their time spending with their children at home (Al-binali, 2012; Al Faleh, 2014; Al-Juaid et al., 2014). In general, changes in Saudi lifestyles influenced on infant nutritional practices which being affected by these socio-economic changes, including the falling tendency of EBF for infants up to 3 months that drop from 90% to 30% (El-Mouzan et al., 2009). Al Faleh study (2014) in Riyadh found only 0.2% of mothers were breast-feeding their infants at age of two years.

A cross-sectional study in Abha reported that only 8.3% of women were exclusively breast-feeding their infants at age of 6 months and breast-feeding was ceased at infant age of less than nine months. In addition, 66.7% of infants received readymade formula while in hospital's nursery (Al-binali, 2012).

In Al-Khobar, Al-Madani and his colleagues (2010) found that almost 90% of Saudi women intended to breast-feed their infants exclusively during their antenatal period while only 23% were exclusively breast-fed their infants until the age of six months. The younger women in the study aged below 34 years exclusively breast-fed their children more than mothers aged of more than 34 years. Moreover a study in Taif reported that the rate of EBF was 19% among nursing women (Fallis, 2013). Likewise, a breast-feeding review by Al-Juaid et al., (2014) reported a progressive decline of the duration of breast-feeding in Saudi Arabia from 13 months to 8.5 months, which showed low rate of EBF at infant's age of six months from 1.7% to 24.4% in 1987 and 2010 respectively. In fact, most of the breast-feeding studies in Saudi Arabia showed that the rate of EBF is below the the international infant feeding recommendation (Al-binali, 2012; Al-Juaid et al., 2014).

2.3 Knowledge of exclusive breast-feeding

A study in Uganda reported that more than 70% of the women knew the ideal duration of EBF however, only half of them practice EBF for six months (Petit, 2010). Similarly another study in Nigeria reported that only 14.7% of the women breastfed exclusively while 70% of them were scored above average with regards to their breast-feeding knowledge. Education level was a direct influencer on the participants breast-feeding knowledge score (Augustina et al., 2010). Chatman et al. (2004) studied the influence of knowledge and attitudes on EBF practice among rural Jamaican mothers. They found that approximately 98% of the women showed acceptable breast-feeding knowledge. Women higher knowledge about breast-feeding was associated with longer duration of breast-feeding. Multiparous women were more knowledgeable about EBF than primgravidas due to their past experience and succeed better (Hall & Hauck, 2007; Neupane, et al., 2014).

A study in Al Hassa, Saudi Arabia of assessing breast-feeding knowledge among students found that knowledge scores were low regarding the breast-feeding timely initiation, duration and exclusivity of breast-feeding irrespective of the educational disciplines (Amin et al., 2011). Another study in Abha among working

women found that there were knowledge deficit in relation to breast-feeding duration and information about EBF which directly affect their breast-feeding practice as 90% of the women did give formula to their infants between four to six months of infants' life (Al-binali, 2012). In contrary, a study in Riyadh among Saudi women reported that majority of the study women have a good knowledge regarding breast-feeding's health benefits for mother and child, however only 44.1% of the women know that EBF is needed to be continued for the first six months of infant's life (Saied et al, 2013). Likewise, Al-Faleh (2013) study in the Central region of Saudi Arabia found that the majority of women were well aware that EBF is the optimal newborn feeding method although most of the study participants claimed that they did not attend breast-feeding education during their antenatal period.

2.4 Attitude toward exclusive breast-feeding

Breast-feeding is crucial for a child nurturing to maintain healthy growth and development. Infant breast-feeding has been the standard pattern in meeting the infant wellbeing (Neupane, et al, 2014). Childbearing women consider and have different emotions towards EBF. Indeed, evidence found that infant feeding decisions are associated maternal attitude and perception toward breast-feeding as well as the knowledge (Hamade et al., 2014). Yeo (2005) conducted a study on pregnant women attitude toward EBF and they found that although majority of pregnant women consider EBF as ideal method of infant's feeding, water was given to the infants as they believed it is very important to do. In Saudi Arabia, a study found that women have some misperception about breast-feeding (Shahbar, 2014). Al-Madani et al. (2010) claimed that more than 80% of women in Eastern region agreed or strongly agreed that formula is as healthy for infants as breast milk. Conversely , Al-Welaie et al. (2010) found that more than 80% of the women in Central region were strongly disagreed or disagreed that formula is as good as breast milk. Even though with Al-Welaie et al. findings that women believed that formula was not nutritionally valuable as breast milk, most women in the study used formula feeding with their infants (Al-Welaie et al., 2010). Furthermore , 47% women claimed that formula feeding is the best choice for working women and 88% found it to be easier than breast-feeding while 83% women agreed that breastfed newborns were more likely to be overfed than formula feed newborns (Al-Madani et al., 2010).

II. Research Methods

2.1Research Design Approach and Settings

This study was conducted using a quantitative descriptive cross-sectional design. The study was conducted at the Kingdom of Saudi Arabia, Western province in the primary health care centers well-baby clinics at Jeddah city.

3.2 Sample size

The researcher recruited a convenience sample of 315 women from the selected ten primary health care centers where 315 divided equally among the ten centers.

3.3 Inclusion criteria

The inclusion criteria of the sample in this research is Saudi woman have given birth to a live full-term healthy newborn during the last 12 months as infant age between 6 to 12 months.

3.4 Ethical approval

Ethical approval for this research went through three stages: First, an official written ethical approval obtained from the Ethical Committee of Nursing College at King Abdulaziz University (KAU) Second, the ethical approval was obtained from the Ethical Committee of MOH. One month later, MOH sent a letter to all directors of the selected primary health care centers in Jeddah declaring their approval.

The last stage, the written informed consent was obtained from the women prior to the participation in the study. Moreover, full information provided to the women by the researcher as the informed consent covers all the required elements such as study title and aim, process of data collection and management, and the right to withdraw at any time & right to ask any question at the end of the interview.

3.5 Research Instrument

A structured, interviewer-administered questionnaire was developed by the researcher based on the review of relevant and updated literature for data collection to gain an understanding of women knowledge and attitude around EBF. The questionnaire is divided into five parts. Part I assesses the woman's sociodemographic and obstetrical data as in two sections: First section assesses the general characteristics of the woman (age, educational level, occupation, etc.,). The second section identifies obstetrical information (number of children, age, and type of delivery, feeding types as from birth to six months of infant's age). Part II covers woman's breast-feeding patterns with her youngest child (time of initiating breast-feeding, reason of starting formula feeding, infant age when breast-feeding stopped, etc.,) and problems experienced by nursing mothers (cracked nipples, breast engorgement, inverted nipples , etc,).

Part III includes two sections; the first section identified the meaning and ideal duration of EBF. The second section addressing knowledge assessment (benefits of EBF, significance of colostrum, the number of feeds the infant should take daily, etc,).Part IV assesses the attitude of the woman in relation to EBF in form of Likert scale. Part V assesses the sources of woman's information about EBF.

3.6 Data collection process

The study was carried out using a structured questionnaire through interviews by the researcher that were conducted at the waiting area of well-baby clinic at the ten selected primary health care centers in five days a week. Researcher made sure to ask only one question at a time, repeat a question if necessary, listen carefully to the participant's answer and allow the participant sufficient time to answer the questions. The interviews had identified time limits of almost 15-17 minutes. All interviews were conducted with the guide of the Arabic version of the questionnaire.

III. Figures and Tables

Data analysis was conducted using descriptive and inferential tests through the use of SPSS (the Statistical Package for the Social Science) version 22.

The main results of the present study were as follows:

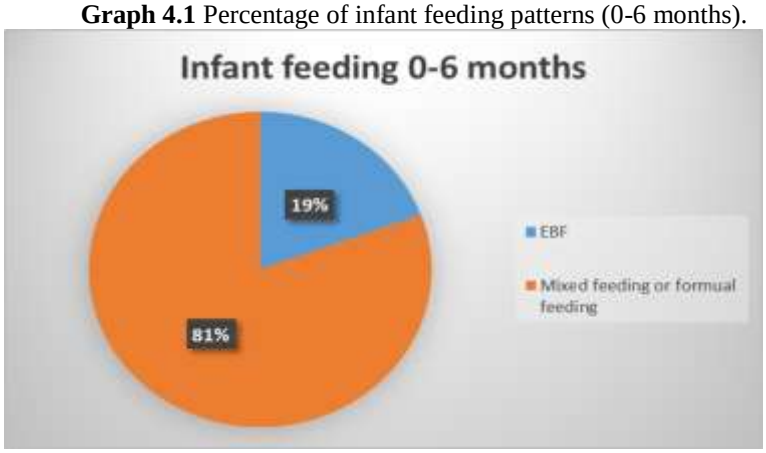
1. More than half of the women 53.7% were above 29 years old and. More than half of the women 56.5% were university graduates. More than sixty percent of the women (61.9%) were housewife. The monthly family income for more than half of the women 59.0% ranges from 5,000 to 7.000 SR (Table 4.1).

Table 4.1 Women's Biosocio-demographic Characteristics (n=315)

Demographic Characteristics	f	(%)
Age		
• 23 or below	48	15.2
• > 23 to 29	98	31.1
• > 29	169	53.7
Highest level of education		
• Primary and intermediate	26	8.3
• High School	111	35.2
• Graduate and post-graduate	178	56.5
Occupation		
• Housewife	195	61.9
• Working	87	27.6
• Student	33	10.5
Monthly income		
• <5000 SR	44	14.0
• 5000 – 7000 SR	186	59.0
• >7000 SR	85	27.0

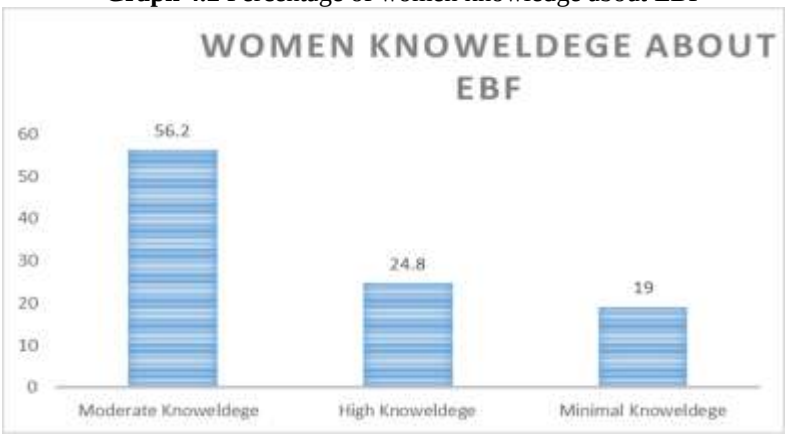
2. The mean of women return to work and study after giving birth in months was 2.20. About half of the women 54.2% had two or three children. More than half of the women 68.5% delivered via spontaneous vaginal delivery while 31.5% delivered via caesarian section (C/S).
3. There is statistical significant relation found between the women's EBF experience and some of their sociodemographic and obstetric characteristics, including age, level of education, occupation, type of family, monthly income, number of children and mode of delivery
4. Half of the women 58.1% experienced skin to skin contact after delivery, and about 27.9% initiated breast-feeding within the first hour after delivery while 43.2% of the women started to feed their babies after the first hour but within the 6 hours after delivery.
5. About 81% of the newborns were fed by formula milk. And 40.9% of those fed by formula started within their first hours of life (graph 4.1)

Graph 4.1 Percentage of infant feeding patterns (0-6 months).



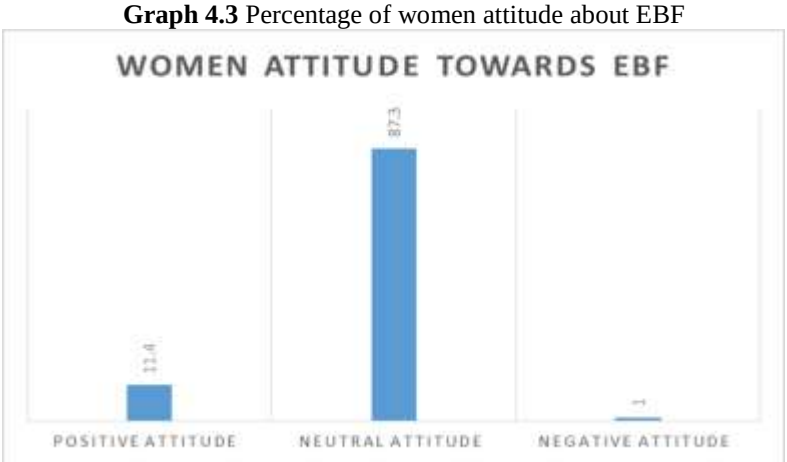
6. Breast problems experienced by the women during breast-feeding their newborns were cracked nipple, not enough milk, and breast engorgement 68.5%, 57.3%, 51.3% respectively.
7. Sixty percent of the women in the study used something to stimulate/increase breast milk production. The fenugreek was ranked as the highest 48.0% among the other products to stimulate/increase breast milk production.
8. More than half of the women 56.2% were having moderate knowledge score regarding EBF, only 24.8% were having high knowledge score while 19.0% were having minimal knowledge score in relation to EBF (Graph 4.2).

Graph 4.2 Percentage of women knowledge about EBF



9. Only 11.4% of the women had positive attitude towards EBF, while the majority 87.6% had neutral attitude and 1% had negative attitude (Graph 4.3).

Graph 4.3 Percentage of women attitude about EBF



10. Most of the women 87.3% got their knowledge about EBF from their families and friends.

IV. Discussion

Breast-feeding is a unique way of providing ultimate nutrition for the healthy growth and development of infants. According to the WHO recommendation, infants should be exclusively breastfed for the first six months. Even though EBF is a universally accepted and praised behavior in Arab countries and in Saudi Arabia in particular, low percentage of women practiced EBF for the infant's first six months of life. The current study addressed women experience of EBF from different aspects. Starting with demographic and obstetric characteristics of the women, the pattern of breast-feeding which revealed that majority of women adapting formula feeding rather than EBF. The factors influencing women practice of EBF that were identified as statistically significant factors; are women's age, level of education, occupation, and monthly income. The women's knowledge about EBF showed that the majority of the women had moderate EBF knowledge. The EBF knowledge sources were disclosed as; family and friends, doctor and nurses and internet. Followed by the women attitude toward EBF that was studied and found that most of the women had neutral attitude toward EBF. As well as the factors that enhance or hinder the practice of EBF. Factors that influencing EBF were divided into two types. First, factors enhancing EBF practice among women such as enough knowledge about EBF, family support and proper breast-feeding preparation during antepartum postpartum period. Secondly, factors hindering women from exclusively breastfeed their infants such as perception of inadequate milk, lack of knowledge about EBF and family support. TPB was used as the theoretical framework to guide this study through studying and understanding the women's attitude, subjective norms and perceived behavioral control. Study findings may make recommendations towards the initiation of structured breast-feeding education and awareness programs, as well as policies and procedures in many health care facilities. Moreover, this study may provide impetus for further investigation on EBF in the Western region of Saudi Arabia.

V. Conclusion

In conclusion, this study is the first nursing study done in Western region of Saudi Arabia to assess the Saudi women's knowledge and attitude towards EBF. Thereby, this study provides a current database of Saudi women's knowledge, attitude and practice of EBF for healthcare providers, especially nurses to initiate structured breast-feeding programs in the primary health care centers (PHCCs) and other health care facilities. It would also help Jeddah hospitals that are planning to adopt BFHI principles to prepare education plans and strategies that will contribute to the attainment of BFHI requirements. In addition, study results would make recommendations towards the breast-feeding policies and procedures in many health care sectors. Lastly, this study may provide impetus for further investigation on EBF in the Western region of Saudi Arabia.

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