Original Article

Barriers in continuing exclusive breastfeeding among working mothers in primary health care in the ministry of health in Al-Ahsa region, Saudi Arabia

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Abstract

The World Health Organization (WHO) recommends exclusive breastfeeding (EBF) in the first 6 months of a child's life by ensuring that the child receives only their mother's milk without adding any other food or drink, including water. **Objectives:** Assessing the obstacles that hinder the continued EBF of mothers working in primary health care (PHC) in Saudi Arabia, particularly in the Al-Ahsa region. **Method:** In this analytic cross-sectional study, 280 mothers working in PHC, who were conveniently selected, answered a self-administered questionnaire to evaluate the barriers in continuing breastfeeding. **Results:** In the study, 69.5% (P = 0.006) of these respondents reported that an early return to work was the most common barrier that prevented continued EBF, followed by 66% (P = 0.009) who responded that an unsupportive working environment had prevented them from exclusively breastfeeding. Inadequate breast milk from the mother is an obstacle identified by 43.5% of the study participants (P < 0.001), and about 42.5% (P <.001) of the mothers in the survey stated that breastfeeding takes a lot of time from the mother's daily routine, so the time constraints are an obstacle to continued EBF. In addition, 96% of the study participants reported that working environments in the field of PHC did not contain suitable places to breastfeed or pump breast milk; 77.5% of responses stated there were also no facilities for storage of milk expressed during working hours. A working mother could not benefit from breastfeeding breaks during the workday in 96.5% of the cases studied, and 60% of the women attributed the reason to the existence of a strict work schedule within the work environment. **Conclusion:** Nearly half of PHC working mothers in Al-Ahsa were exclusively breastfed their infants. Early return to work, deficient breastfeeding work support, insufficient breast milk and lack of time were the major barriers to EBF. Lack of nursing breaks, lactation places, and expressed milk storing facilities inside PHCCs are the major work-related barriers to continuity of EBF.

Keywords: Barriers, breastfeeding, primary health care working mother

Introduction

Background

Exclusive breastfeeding benefits

The World Health Organization (WHO) recommends mothers to exclusively breastfeed their infants in the first 6 months of their life.[1]

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Exclusive breastfeeding (EBF) is defined by the WHO as infant feeding by breast milk only, with no other substance entering an infant's mouth for feeding purposes (even water), excluding any medically necessary vitamins or mineral supplements and drugs.[2]

The recommendation for EBF comes because researchers have repeatedly demonstrated the considerable benefits of breastfeeding over formula feeding in most cases. Human milk has many components that enhance gastrointestinal (GI)

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development, mobility, and maturity for infants, and it also protects them from necrotizing enterocolitis.[3]

Infants that are fed by breast milk are at a lower risk of gastroenteritis, diarrheal illnesses, urinary tract infections (UTIs), sepsis, and respiratory infections compared with infants who are fed by a formula.[4]

The presence of the characteristic antimicrobial agents in the contents of breast milk provide the infants with protection against several viral, bacterial, and protozoan infections.[5] The risk of two or more episodes of otitis media is reduced in breast-fed infants for 1 year.[6] Breastfeeding is also shown to prevent many types of cancers, such as lymphoma and leukemia, in infants.[7]

Type 1 diabetes mellitus (DM) in breast-fed infants also has a lower rate of occurrence in comparison with infants who are formula-fed.[8] In addition, the longer the duration of breastfeeding, the more of a boost is typically seen in the intelligence quotient (IQ) of that infant.[9]

Mothers, also, significantly have both short- and long-term benefits from breastfeeding.[10] The recovery of the uterus after childbirth is greatly facilitated by oxytocin secretion, which is stimulated by breastfeeding.[11] In addition, breastfeeding can strengthen maternal–infant bonding, and it lowers the risk of child abuse and neglect.[12] A return to prepregnancy weight and prolongation of postpartum anovulation of the mothers can both be facilitated by continuing breastfeeding.[13]

The risks of the mother developing breast, ovarian, and endometrial cancers are also shown to be reduced by breastfeeding.[13] Mothers with a history of gestational DM are at a reduced risk of developing chronic diabetes for many years after delivery if they strictly adhere to breastfeeding.[14]

It is not only the mother and infant who benefit from breastfeeding, the families and community also see advantages.[15] Breastfeeding is a cost-effective method of feeding infants, which saves families money by decreasing the need to buy formula (estimated to be $1000 per year) and also by decreasing the costs associated with infant illnesses.[16] Communities benefit from breastfeeding in the form of a reduced infant mortality rate, as well as a decreased burden of infections when compared with formula-fed infants.[16]

Factors affecting exclusive breastfeeding

The parents' decision about whether to select breastfeeding or not is varied, according to the presence or absence of many factors, such as being educated about the benefits of breastfeeding and/or other special factors.[17]

The rate of breastfeeding initiation was low among mothers who are younger than 20 years of age and in low educated mothers (i.e., those who didn't graduated from high school).[18]

The rate is also lower in mothers with unwanted pregnancies,[19] low-birth-weight infants (less than 1500 gm),[20] and those who exhibit early postpartum depression.[21] Low gestational age has a negative effect on the breastfeeding initiation rate.[22]

Early termination of breastfeeding is affected both by breastfeeding difficulties and maternal perception about the insufficient amount of breast milk.[23] Sore nipples, lack of confidence in breastfeeding abilities, maternal depression, and early return to work may also contribute to an early cessation of breastfeeding.[24,25]

Several items were identified by the WHO that contributed to a decrease in the percentage of global EBF, including social and related traditional beliefs, health interventions, formula milk marketing, home and work environment, and parents' knowledge about breastfeeding.[26]

Data show that early cessation of breastfeeding was significantly associated with mothers who joined other outside-the-home activities, such as working outside.[27] Knowledge about the benefits of EBF is thought to be a positive influence on mothers to continue it.[28] But, some studies show that the rate of breastfeeding was not affected by mothers' knowledge of these benefits, and many Saudi mothers prefer to combine breastfeeding with formula feeding even with the knowledge of the well-established benefits of EBF.[29]

Some of the Saudi mothers complain that insufficient breast milk is a major cause influencing them to stop breastfeeding prematurely.[30] An increase in the early introduction of formula feeding appeared simultaneously with the hard introduction of formula milk advertisements by companies; thus, lots of mothers have chosen to replace breastfeeding by bottle feeding.[31]

International trends of breastfeeding

Globally, the percentage of infants who are exclusively breastfed ranges from 1% to 89%.[32] Returning to work was one of the most common barriers that cause mothers to shift to formula feeding and stop breastfeeding.[33]

According to the U.S. Department of Health and Human Service (HHS), around two-thirds of mothers started formula feeding at age of 3 months and more than 50% of them entirely stop breastfeeding.[34]

Breastfeeding data collection in the last 5 years was estimated to be 40% and EBF was 41% in babies under 6 months of age.[35]

Trends of breastfeeding in the Gulf Cooperation Council countries

Breastfeeding prevalence in the Middle East has been on a general decline, from 30% in 1990 to 26% in 2006.[36] In Bahrain, the rate of EBF for less than 6 months' duration was 34% in 2010, and 41% of them continued breastfeeding for 20–23 months.[37] About two-third of Bahraini mothers, mix

feeding (breastfeeding in addition to providing other kinds of nutrition) was a common feeding habit in the first 6 months of an infant's life.[37]

In Oman, the rate of EBF decreased from 31.3% in 2005 to 9.1% in 2012, and the majority of Omani mothers are dependent on formula feeding, at a rate of 90.1% in 2012.[38] In Kuwait, 92.5% of newly delivered mothers were exclusively breastfed their infants, but after hospital discharge 29.8% of them were continue EBF.[39] In a study done in 2011, the rate of EBF in the first 6 months of an infant's life was estimated to be 15.2%. The majority of Kuwaiti mothers spend around 2.7 months exclusively breastfeeding on average.[40]

In Qatar, 49.9% of infants received breastfeeding in the first year of their life, and only 45.4% of them continued to receive breast milk up to 2 years of age.[41]

The trend of breastfeeding in Saudi Arabia

In Saudi Arabia, there are no statistical data that evaluate the rate, pattern, and duration of EBF. This makes it difficult to clarify the actual status of breastfeeding in Saudi Arabia, and almost all information included here was collected from the published literature that studied some Saudi populations.

Breastfeeding rates in some studies performed in Saudi Arabia show a tendency to decline as time progresses.[27] One study that was conducted in Saudi Arabia in 2014 stated that the rate of EBF ranged from 0.8% to 43.9%.[42]

Ahmed *et al.* stated that the rate of breastfeeding initiation in Saudi mothers was 91.7%,[43] and despite the high initiation rate, the rate of EBF in the first 6 months was 13.7%[44]

Also, the continuation of breastfeeding in Saudi mothers, who choose to start their babies with breastfeeding, declined from 13.4 months in 1987 to 8.5 months in 2010.[42]

Studies show that the rate of EBF had declined by 30% in 1996, 31% in 2002, 24.4% in 2011, and 14% in 2016.[45,46] The rate of partial breastfeeding has also decreased from 88.6% at birth to 78.8% at the age of 6 months.[47]

Another study in the Tabuk city shows the rate of EBF was 31.4%.[48] In Abha, EBF rates were below target levels although studies show that 55.3% of these mothers have a good level of education regarding the benefits of breastfeeding.[49]

According to a study done in 2016, the percentage of mothers who start breastfeeding in Riyadh and Dammam cities was 76%, but 37% of them chose to complete breastfeeding after a 6-month duration. The highest rate of starting and continuing breastfeeding was in Dammam city.[50]

Breastfeeding in working mothers

In 2018, more than 2 million members of the Saudi female population were active participants in the labor force, which represents 17% of the total labor force, and is forecasted to increase to 25% by 2020. Working women aged between 35 and 39 years represent 20% of all working females in Saudi Arabia.[51]

Working itself does not necessarily make mothers less willing to breastfeed exclusively rather it creates difficulties and presents challenges in continuing breastfeeding.[32]

A woman's capacity to continue breastfeeding is decreased once she returns to her job if necessary support systems are not present, such as nursing breaks, nearby childcare, and the designation of an appropriate place for pumping and storing milk.[52]

The rate of breastfeeding in Saudi Arabia is significantly reduced in working mothers. One study was conducted in Riyadh city to evaluate the breastfeeding status among employed mothers in 2015. This study states that 25.6% of those mothers stopped their breastfeeding earlier than anticipated because of work-related difficulties.[53]

The initiation and duration of breastfeeding were lower in women who worked full-time in comparison with mothers who were not working full-time. Part-time work increased the rates of initiation and the duration of breastfeeding.[54]

The Early Childhood Longitudinal Study, Birth Cohort (ECLS-B) states that mothers who return to work within 6 weeks of delivery have a decreased likelihood of initiating and maintaining breastfeeding.[24]

Maternity protection in the workplace is one of the seven actions needed to facilitate breastfeeding practice by the mothers, as stated by the Global Breastfeeding Collective.[55]

As recommended by the International Labour Organization, to encourage continued breastfeeding, countries should provide new mothers 18 weeks of maternity leave without decreasing their salaries, in addition to providing time and place for nursing when these mothers return to work.[35]

Effects of breastfeeding-friendly policy

Internationally, only 12% of the countries provide the recommended maternity leave,[34] and the percentage of countries who achieve or exceed the International Labor Organization's (ILO) recommendation was only 42 (23%).[56]

Starting or continuing breastfeeding is less likely among females who are ready to return to work than among nonworking women, and short maternity leaves (defined as a period of fewer than 6 weeks) increase the chance of a mother choosing not to start breastfeeding or stop it earlier by 400%.[56]

The implementation of supportive strategies in the workplace is targeted to be increased from 25% in 2009 to 38% by 2020,[57] and the rate of EBF is aimed to reach 50% by 2025, as predicted by WHO in 2014.[58]

An effective paid maternity leave for 6 months or more increases the percentage of EBF by 8.9%.[56] One of the low-cost ways to decrease the mothers' absences and increase their productivity is to facilitate breastfeeding practices in the workplace with support systems, such as providing appropriate rooms and times for nursing.[56]

In the United States Army, 44% of the working mothers breastfed their infants and only 13% of them stated that there was breastfeeding work supports, including lactation room and refrigerator as a storing device.[59]

In countries that provide a breastfeeding break for working mothers, the rate of breastfeeding for infants less than 6 months of age increased by 7.7%.[60]

Despite the presence of maternity leave policies in some workplaces, the rate of EBF is continuing to decline, which means these policies are insufficient on their own and need to be improved and expanded upon.[61] Some working mothers complain of strict full-time schedules that did not let them freely take nursing breaks.[61] In addition, some employee mothers did not find a private room in their workplace for breast-pumping or lactation and some had no facilities for storing the expressed milk, such as refrigeration.[61]

Knowledge gap

Evidence shows that several factors contribute to a decrease in the rates of EBF in general.[62]

Studies identify a relationship between EBF rates and common sociocultural beliefs that created a sense of distrust of the adequacy of breast milk as the only source of infant nutrition.[62]

Hospital policies to encourage breastfeeding may need to be optimized to increase the EBF rates among new mothers, and to encourage continued breastfeeding in their subsequent health visits.[62] An inadequate number of trained health professionals that are able to provide health education to encourage breastfeeding was a contributing factor in the decrease of the exclusivity rate of breastfeeding mothers.[62]

The strong presence of advertisements for baby formula milk, sometimes pushed by medical representatives, and work-related obstacles have also been observed to decrease breastfeeding rates.[63] In addition, the health condition of mothers and infants, level of parental education, and presence of breastfeeding-related stressors all have significant impact on breastfeeding rates.[64]

In Saudi Arabia, there is no existing information about the multiple barriers to continuing EBF among primary health care (PHC) working mothers. Creating appropriate interventions to improve starting, as well as maintaining, EBF depends first on identifying these barriers and difficulties. Our study aimed to identify these barriers.

From the importance of healthy development of infants and young children, preventing them from infections,[4] lowering the risks of obesity and chronic illnesses,[8] preventing mothers breast and ovarian cancers,[13] and lowering health-related costs[16] and from knowing that more than two million members of the Saudi female population were active participants in the labor force, which represents 17% of the total labor force,[51] the importance of supporting this huge numbers of population take place. Before providing assistance, it is important to know the major obstacles that prevent those mothers from practicing EBF.

Research questions

1. What are the barriers to EBF among mothers who work in PHC?
2. How prevalent is breastfeeding in PHC-working mothers in Al-Ahsa?

Study hypothesis

Working mothers in the PHC system face barriers that lead them to early initiation of formula and early cessation of breastfeeding. Working mothers are positively affected by the benefits of breastfeeding, which stimulate their continuation of this practice.

General objective

To identify the barriers to EBF among working mothers in PHC in the Ministry of Health (MOH) in the Al-Ahsa region of Saudi Arabia.

Objectives

1. To determine EBF barriers facing PHC-working mothers in the MOH, Al-Ahsa, Saudi Arabia.
2. To estimate the rate of EBF in PHC working mothers.
3. To determine the relationship between the barriers to EBF among working mothers in PHC and the rates of exclusivity of breastfeeding.

Methodology

This study evaluates the important factors that create barriers to continue EBF among mothers who work in MOH PHC centers in Saudi Arabia, in the Al-Ahsa region. The study "Barriers in continuing EBF in PHC-working mothers" was conducted from February 2018 to March 2019 and involved the mothers who work in PHC at that time. The data were collected by investigators themselves using a self-administered questionnaire. Ethical approval by ethical committee was obtained on 13 December 2017.

Study area

The Kingdom of Saudi Arabia (KSA) is in the far southwest portion of Asia, bordered by the Red Sea, the Arabian Gulf, the United Arab Emirates, Qatar, both North and South Yemen, and Oman.[60] Saudi Arabia occupies four-fifths of the Arabian Peninsula, with an area of about 2,000,000 square km.[65]

The Kingdom is divided into 13 administrative regions. The region is divided into a number of governorates, the number of which varies from one region to another.[65]

The Eastern Province is the largest of these areas and is located in eastern Saudi Arabia.[65] It represents 36.2% of the total area of the KSA.[66]

The average annual temperature is 25°C, and temperatures begin to rise in May and continue to do so throughout June, July, and August up to about 45°C. The months of January and February are the coldest months of the year, and the temperature falls to 10°C, with humidity remaining high in the area.[66]

Al-Ahsa region is located in the Eastern Province of Saudi Arabia, with a total population of about 1,200,000 million.[67] According to the administrative distribution of KSA districts, its borders extend from Abqaiq Governorate in the North, The Arabian Gulf, Salwa Bay, the Empty Quarter in the South and Al-Dahna'a Desert from the west. Al-Ahsa is characterized to be the main outlet access that connects KSA with the other Gulf States. It is about 40 km from the Arabian Gulf, 150 km south of Dammam, and 320 km east of the capital city of Riyadh.[68]

The oasis of Al-Ahsa is rich in natural resources, such as springs and more than 3 million palm trees, and the region contains by far the largest conventional oil field in the world (Al-Ghawar oil field).[68]

There are five major cities in Al-Ahsa: Al-Hofuf, Al-Mubarraz, Al-Omran, Al-Eiown, and Al-Jaffer. The number of villages is 32, and the average distances range from 2–5 km between villages and between villages and cities. The number of Hejar (Bedouin desert communities) is 55, scattered throughout the region.[68]

The MOH is the biggest provider of healthcare in Al-Ahsa, providing services through nine hospitals, including 1 mental health hospital. There are also other hospitals belonging to the National Guard, Saudi Aramco, and the private sector. In Al-Ahsa, there are 69 PHCs working under four sectors; three of them are in the main towns, which are Al-Mubarraz, Al-Hofouf, and Al-Omran. The fourth sector is Al-Hejar, which supervises the work of PHC centers in the Bedouin desert communities.[69]

Preparation of the research

The study was approved in the Postgraduate Center of Family Medicine and Community Medicine in Al-Ahsa and a request was sent to the Health Affairs Directorate for Public Health in Al-Ahsa to facilitate the data collection. This request was approved.

Research description

Research design

Analytic cross-sectional study through a self-administered questionnaire (SAQ).

Study setting and time:

PHC center in Eastern province, Al-Ahsa in the MOH sector during the period from February 2018 to March 2019.

Study population:

All mothers in Eastern province, Al-Ahsa in the MOH sector, Saudi Arabia.

Sampling

Sampling size

The sample size was evaluated by the statistician to be 200 at the 95% confidence level with a 5% margin of error.

Sampling Technique:

The sample was selected by convenience sampling and was entered electronically using the program Excel. The data were taken from PHC-working mothers including physicians, technicians, and administrative workers.

Questionnaire

Data were collected from mothers by a self-administered questionnaire. The questionnaire was created by the investigators to meets the research objectives and is divided into four parts.

Part 1 contains demographic data, including occupation, income, age, marital status, number of children, educational level, employment status, the presence or absence of work shifts, and working hours per day.

Part 2 contains breastfeeding behavior by mothers, including previous breastfeeding experience, duration of exclusively breastfeeding, breastfeeding during maternal leave, duration of maternity leave, EBF after returning to work, and time of initiation of formula feeding.

Part 3 contains the factors that prevent mothers working in PHC to continue EBF, including: amount of breast milk, any concern regarding sufficiency of milk, insufficient confidence about the ability to breastfeed, concerns about food or medication taken by the mother, pregnancy before completing the breastfeeding duration, stress, time needed for breastfeeding, infant weight effect, unsupportive work environments, unsupportive families, difficulty of breastfeeding in front of others, nipple problems, previous negative experiences, deficient knowledge about breastfeeding benefits, distorted breast shape, formula milk advertising, and mother or infant illness.

Part 4 contains information about breastfeeding-friendly policies applied in PHC settings, including breastfeeding breaks, proper time and place for breastfeeding, and storing expressed breast milk.

The first page contains the research title, introductions of the investigators, a discussion of their aims in doing this study, and an assurance of the confidentiality of information provided by responders.

Data collection was done by investigators themselves. All data were checked prior to being entered into computers for analysis.

The validity of the Questionnaire

The questionnaire was checked by two family medicine (FM) consultants who are experts in training, and according to their point of view, editing was performed by either adding, deleting or changing the words.

Pilot Study

The questionnaire was distributed to 30 PHC worker mothers and with a statistician's help, the validity and reliability of the questionnaire were verified.

Reliability of the Questionnaire

The reliability of the questionnaire was calculated using Cronbach's alpha. The value of the Cronbach's alpha was 0.863; this value implies that the questionnaire was reliable and can be used in the research.

Data analysis:

The data analysis was performed using statistical analysis, SPSS. The categorical data were in the form of frequency distributions and percentages. The continuous data were in the forms of mean, range, median, and standard deviation. T-test was used to study a relation between continuous and categorical variables, and Chi-squared was used for two categorical variables. Scattered dots were used for assessing relation between 2 continuous variables.

The cut point of statistical significance (*P* value) is set at ≤0.05.

The data analysis was checked by biostatisticians until the end of the study.

Participant criteria

Inclusion criteria

- All mothers working in the PHC system in Al-Ahsa including physicians, technicians, or administrative workers.
- Aged between 18–50 years.
- Saudi mothers.

Exclusion criteria

- Mothers who deliver a child before being employed in MOH for at least 2 years
- Mothers below 18 years old, or older than 50
- Any married female in the PHC system who has not had children
- Single females
- Non-Saudi workers

Study Variables

Dependent variables

Barriers to continuing breastfeeding in PHC among working mothers, which have three components: 1) mother-related factors, which are defined as anything in the mother that prevents her from continuing EBF, 2) infant-related factors, which are defined as anything in the infants that prevent the mother from continuing EBF, and 3) institution-related factors, which are defined as anything in the institutions that prevent the mother from continuing EBF.

Independent variables

Demographics, including age, level of education, marital status and number of children.

Work-related factors including employment status, work shift, hours worked per day, breastfeeding support services, availability of breastfeeding or breast pumping, being offered to breastfeed or to breast pump during breaks in work hours, the presence of a lactation room, and the presence of a policy supporting employees to breastfeed or express milk in their workplace.

Mother-related factors include knowledge, fear of distorted breast shape, pain, poor prenatal and postpartum support, perception of insufficient milk production, embarrassment because of lactation in public place or in front of family members, illness or fatigue, medication use, and maternal stress.

Infant related factors include infant medical illness.

Timetable

Research work started in February 2018 and ended on March 2019.

Study strength

1. It is the first study that evaluates the barriers to the continuity of EBF among PHC-working mothers in the Al-Ahsa region, KSA.
2. It is the first study that evaluates the rate of EBF among PHC-working mothers in the Al-Ahsa region, KSA.

Ethical consideration

Formal consent to conduct the study among PHC worker mothers was taken from the Health Affairs Directorate for Public Health in Al-Ahsa.

All invited mothers were provided information sheets and verbal explanations of the study, which illustrated the study objectives, significance, methods and contact details, and assured participants that their privacy is fully respected. The research staff informed participating mothers that the anonymity and confidentiality of collected information would be ensured throughout the study procedure and publication of findings. Verbal consent was taken from mothers who wanted to share in the research. Participants were notified that involvement in the study is voluntary and that they had rights to decline or withdraw from the study at any time without any impact on health services provided to them. All questionnaires were stored securely to maintain confidentiality.

Results

This research tried to examine the barriers to EBF among PHC-working mothers in Al-Ahsa PHC centers during the study time. The results were shown as follows:

Response rate

Of the 260 paper and electronic questionnaires that were distributed, 200 of them were completed, and 30 were discarded because they were incomplete or the participants met the exclusion criteria, so the response rate was 76.9%.

SECTION 1: Socio-demographic characteristics

The study sample consisted of 200 PHC-working mother participants with different socio-demographic characteristics. The group showed a mean age of 32.07 years with a ± 5.75 standard deviation.

Distribution by marital status

Two variables expressed the marital status of the study sample: Married and Divorced. Figure 1 shows this distribution.

Figure 1 shows that the distribution of the study sample by marital status was as follows: 95% of participants were married and 5% were divorced.

Distribution by educational level

The educational level was distributed in three categories: Pre-university, university, and post-graduate; more than half of the participants were at the university level (61%), and the remaining were either at the pre-university level (20%) or at post-graduate level (19%). Figure 2 shows this distribution.

Distribution by occupation

The occupation was distributed in three categories: doctor, technician, and administrator. Figure 3 shows that nearly half of the participants were technicians (51%), most of the remaining half were doctors (45.5%), and only a small percent of administrative workers shared in this survey (3.5%). See Figure 3.

Table 1 shows the frequencies and percentages of each sociodemographic variable and its categories. About 83.5% of the participants stated that they worked full time, and 87% of them did not have work shifts.

Section 2: Breastfeeding behavior

Table 2 shows that the majority (91%) of the participants had previous breastfeeding experience, and 9% reported that they didn't practice breastfeeding before. About 43.5% of the participants continued breastfeeding for more than 6 months. More than half of the participants (56.5%) breastfed for less than 6 months (18.5 for less than 2 months, 21.5% from 2–4 months and 16.5% from 4–6 months). During maternity leave, 79% of the participants stated that they exclusively breastfed their children, and 21% of them did not. After returning to work, 59.5% of the participants continued breastfeeding and the remaining 40.5% stopped breastfeeding.

Formula intrusion happened in the first 2 years after childbirth in 72% of the study sample, and 28% of the sample never started formula feeding. Of all, 10.5% initiated formula feeding more than 6 months after childbirth.

Table 1: Frequencies, percentages for demographic, and personal information

	n	%
Occupation		
Doctor	91	45.5
Technician	102	51.0
Administration	7	3.5
Marital status		
Married	190	95.0
Divorced	10	5.0
Educational level		
Preuniversity	40	20.0
University	123	61.5
Postgraduate	37	18.5
Working status		
Part-time	25	12.5
Full-time	167	83.5
Both	8	4.0
Does your work have shifts?		
Yes	26	13.0
No	174	87.0

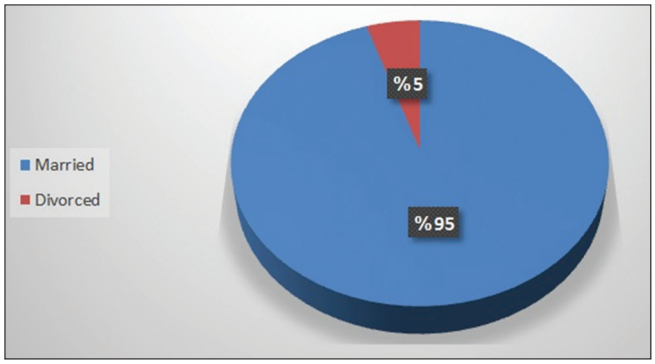

Figure 1: Distribution of the study sample by marital status

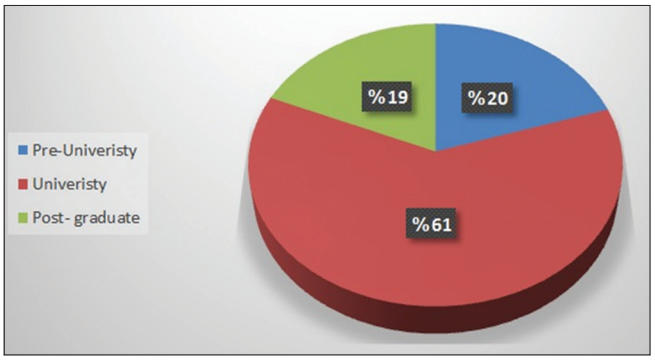

Figure 2: Distribution of the study sample by education level

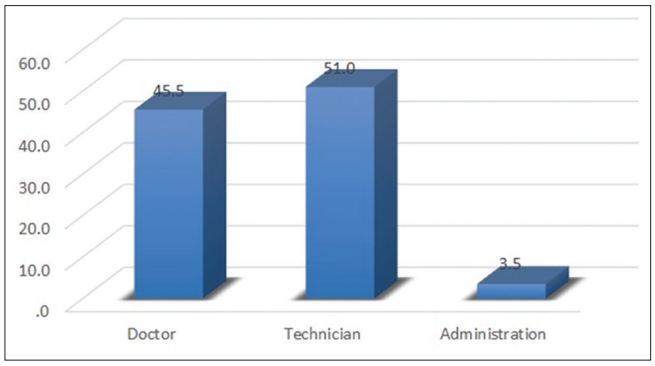

Figure 3: Distribution of the study sample by occupation

Of the 61.5% of mothers who initiate formula feeding in less than 6 months of a child's age, 30% of them begin formula feeding when their children are younger than 1 month old, 7% from the ages of 1–2 months, 18.5% from 2–4 months, and 6% from 4–6 months of age [See Table 2].

Table 2: Breastfeeding behavior (*n*=200)

Breastfeeding behavior items	Categories	*n*	%
Do you have previous breastfeeding experience?	Yes	182	91.0
	No	18	9.0
If you have ever breastfed, how long did you exclusively breastfeed?	<2 months	37	18.5
	From 2-4 months	43	21.5
	From 4-6 months	33	16.5
	>6 months	87	43.5
Do you exclusively breastfeed during your maternal leave?	Yes	158	79.0
	No	42	21.0
Have you continued EBF after returning to work?	Yes	119	59.5
	No	81	40.5
If you initiate the formula, at which month you start?	Never	56	28.0
	<1 month	60	30.0
	From 1-2 months	14	7.0
	From 2-4 months	37	18.5
	From 4-6 months	12	6.0
	>6 months	21	10.5

EBF=Exclusive breastfeeding

SECTION 3: Relation between demographic data and breastfeeding barriers

Relationship between occupation and breastfeeding barriers

Some barriers are significantly associated with particular kinds of jobs. Pregnancy before completing the breastfeeding duration ($P = 0.009$), breastfeeding stress ($P = 0.025$), formula feeding makes a good effect in babies weight in comparison to breastfeeding ($P = .001$), lack of information that exclusively breastfed babies have lower chances of developing skin allergies, asthma, diarrhea and ear infections compared to formula-fed babies ($P = .011$), a lack of information that EBF mothers have fewer chances to develop bleeding after delivery, postpartum depression and reduce the occurrence of obesity-related illness like hypertension and diabetes compared to formula feeding mothers ($P = 0.006$), strong formula milk advertisement or by influence of medical marketing representative ($P = 0.016$), and the presence of maternal illness that prevent breastfeeding ($P = 0.003$) were significantly associated with doctors.

Concerns about taking medicines that are excreted in the breast milk ($P < .001$), and a lack of information that exclusively breastfed babies have fewer chances to develop obesity, diabetes, hypertension, and high cholesterol later in life compared to formula-fed babies ($P = 0.013$) were significantly associated with Technicians. See Table 3.

Relationship between educational level and breastfeeding barriers

Table 4 shows that university-level was significantly associated with the concerns that formula feeding has a good effect on babies weight in comparison to breastfeeding ($P = 0.032$), nipple pain or soreness ($P = 0.030$), taking medicines that are excreted in the breast milk ($P = .002$), bad breastfeeding experiences in the past ($P = .002$), lack of information that exclusively breastfed babies have lower chances of developing obesity, diabetes, hypertension and high cholesterol later in life compared to formula-fed babies ($P = .008$), a lack of information that EBF mothers have fewer chances to develop bleeding after delivery, postpartum depression and reduce the occurrence of obesity-related illnesses like hypertension and diabetes compared to formula feeding mothers ($P = .013$), and the presence of maternal illness that prevent breastfeeding ($P = .044$). See Table 4.

Section 4: Barriers that prevent PHC-working mothers to continue exclusive breastfeeding

Table 5 shows that approximately half of the women (56.5%) cited that their milk secretion was sufficient and did not interfere with their breastfeeding decision, and 74% of participants cited there was no concern about the adequacy of breastfeeding amount when they chose to feed infants naturally. In the study, 84% of the participants had enough confidence in their ability to breastfeed. Sore or painful nipples in 22% of participants interfered with continuing EBF. Another pregnancy during the breastfeeding period was a barrier to continue EBF in 20% of participants. Slightly more than one-third of the sample (36.5%) indicated that breastfeeding was very stressful and time-consuming. Concern about breastfeeding's effect on infant weight also prevented continuity of breastfeeding in 23% of research participants. The majority of participant women (62%) noted that embarrassment about breastfeeding in front of people was not a barrier to continue EBF.

Most of the participants (69.5%) stated that an early return to work or deficient work support to the breastfeeding mothers, (66%) were barriers to continue EBF. In the study, 7.5% of the participants stated that they took medications that interfere with EBF continuity.

Table 3: Relationship between occupation and breastfeeding barriers

Barriers	*P* value	In favor of
If you stopped breastfeeding, what were the barriers that prevent you to continue EBF?		
Pregnancy before completing the breastfeeding duration	0.009	Doctor
Breastfeeding stress	0.025	Doctor
Formula feeding makes a good effect on babies weight in comparison to breastfeeding	0.001	Doctor
Take medicines that excreted in the breast milk	0.001	Technician
Lack of information that exclusively breastfed babies have fewer chances to develop skin allergies, asthma, diarrhea, and ear infections compared to formula-fed babies.	0.011	Doctor
Lack of information that exclusively breastfed babies have fewer chances to develop obesity, diabetes, hypertension, and high cholesterol later in life	0.031	Technician
Lack of information that EBF mothers have fewer chances to develop bleeding after delivery, postpartum depression and reduce the occurrence of obesity-related illness like hypertension and diabetes compared to formula feeding mothers	0.006	Doctor
Strong formula milk advertisement or by the influence of medical marketing representative	0.016	Doctor
Presence of mother illness that prevents breastfeeding	0.003	Doctor

EBF=Exclusive breastfeeding

Table 4: Relationship between educational level and breastfeeding barriers

Demographic variable	Barriers	Barriers	*P* value	In favor of
Educational level	If you stopped breastfeeding, what were the barriers that prevent you to continue EBF?	Formula feeding makes a good effect on babies weight in comparison to breastfeeding	0.032	University
		Nipples pain or sores	0.030	University
		Take medicines that excreted in the breast milk	0.002	University
		Bad breastfeeding experience in the past	0.002	University
		Lack of information that exclusively breastfed babies have fewer chances to develop obesity, diabetes, hypertension, and high cholesterol later in life	0.008	University
		Lack of information that EBF mothers have fewer chances to develop bleeding after delivery, postpartum depression and reduce the occurrence of obesity-related illness like hypertension and diabetes compared to formula feeding mothers	0.013	University
		Presence of mother illness that prevents breastfeeding	0.044	University

EBF=Exclusive breastfeeding

Continuity of EBF was also affected by the presence of previous bad breastfeeding experiences in 10.5% of participants. The majority of women (81%) stated that the methods of storing breast milk were discussed with their practitioners, and 86.5% stated they had received information from the practitioners at the clinics concerning the benefits of EBF. More than two-thirds of participants (82%) reported they had good partner and family support for breastfeeding, and 75% of them are aware of what they should do when they face challenges related to breastfeeding.

In 14% of participants, the continuity of EBF was affected by mothers who had a lack of information about EBF benefits regarding infant susceptibility to infections and allergies, and 15% of them were deficient in knowledge of the long-term benefits of EBF in infants, and that lack of knowledge interfered with the continuity of breastfeeding. In 86.5% of participants, mothers were aware of EBF's benefits to mothers themselves.

Distortion of breast shape did not interfere with EBF in 87.5% of participants. Formula feeding marketing affected the EBF in 13% of participants. Infant and mother illness did not affect the continuity of breastfeeding in 91% and 92% of participants, respectively.

Section 5: Breastfeeding friendly policy items

Table 6 shows that 96% of participants stated that there's no place for breastfeeding or breast pumping in their workplace, and 4% stated that they had a place to do so. About two-thirds of women (68.5%) stated that they pump breast milk and/or they feed their infant during work time, and 31.5% of the participants did not have this chance. The majority of women (96.5%) stated that there were no breastfeeding hours during work time, and only 3.5% have designated breastfeeding hours during their workday.

Of participants, 60.5% stated that they didn't have strict full-time schedules, and only 39.5% stated that they had a strict full-time schedule that prevented them from freely using nursing breaks. Of participants, 77.5% claim that there are no facilities for storing expressed breast milk in their workplace, and 22.5% report that they had this kind of facility.

Section 6: Comparison between breastfeeding friendly policy and continuity of exclusive breastfeeding

Table 7 shows that there was a significant relationship between the existence of breastfeeding hours during work time and the continuation of EBF after returning to work ($P = 0.026$).

Table 5: Barriers that prevent you to continue EBF (*n*=200)

Barriers that prevent you to continue EBF	Categories	*n*	%
Insufficient breast milk secretion	Yes	87	43.5
	No	113	56.5
Concern if the baby takes enough feeding	Yes	52	26.0
	No	148	74.0
Lack the confidence about the ability to breastfed	Yes	32	16.0
	No	168	84.0
Worry if some food that mothers eat will affect the baby's health.	Yes	27	13.5
	No	173	86.5
Pregnancy before completing the breastfeeding duration	Yes	40	20.0
	No	160	80.0
Breastfeeding stress	Yes	73	36.5
	No	127	63.5
Breastfeeding takes a long time from the mother schedule	Yes	85	42.5
	No	115	57.5
Formula feeding makes a good effect on babies weight in comparison to breastfeeding	Yes	47	23.5
	No	153	76.5
Early returned to the work	Yes	139	69.5
	No	61	30.5
Breastfeeding is difficult in front of peoples	Yes	76	38.0
	No	124	62.0
Nipples pain or sores	Yes	44	22.0
	No	156	78.0
Take medicines that excreted in the breast milk	Yes	15	7.5
	No	185	92.5
Bad breastfeeding experience in the past	Yes	21	10.5
	No	179	89.5
No work support to the breastfeeding mothers	Yes	132	66.0
	No	68	34.0
The benefits of EBF were not discussed with the practitioners	Yes	27	13.5
	No	173	86.5
The methods of storing breast milk were not discussed with the practitioners.	Yes	38	19.0
	No	162	81.0
No family or partner support	Yes	36	18.0
	No	164	82.0
You did not know how to contact for help when faced with challenges with breastfeeding	Yes	50	25.0
	No	150	75.0
Lack of information that exclusively breastfed babies have fewer chances to develop skin allergies, asthma, diarrhea, and ear infections compared to formula-fed babies.	Yes	28	14.0
	No	172	86.0
Lack of information that exclusively breastfed babies have fewer chances to develop obesity, diabetes, hypertension, and high cholesterol later in life compared to formula-fed babies.	Yes	31	15.5
	No	169	84.5
Lack of information that EBF mothers have fewer chances to develop bleeding after delivery, postpartum depression and reduce the occurrence of obesity-related illnesses like hypertension and diabetes compared to formula feeding mothers.	Yes	27	13.5
	No	173	86.5
Fear of distortion of breast shape after breastfeeding	Yes	25	12.5
	No	175	87.5
Strong formula milk advertisement or by the influence of medical marketing representative	Yes	26	13.0
	No	174	87.0
Presence of infant illness that prevents breastfeeding	Yes	18	9.0
	No	182	91.0
Presence of mother illness that prevents breastfeeding	Yes	15	7.5
	No	185	92.5

EBF=Exclusive breastfeeding

In addition, there was a highly significant relationship between doing the breastfeeding during work time and the duration of EBF for six months (P <.001).

Also, there was a highly significant relationship between doing the breastfeeding during work time and the continuing of EBF after returning to work (P <.001).

Section 7: Association of discontinued exclusive breastfeeding with any barriers or breastfeeding friendly policy or demographic data

First: Association between discontinued EBF with breastfeeding barriers:

As shown in Table 8, there is a significant association between discontinue breastfeeding and insufficient breast milk secretion ($P < 0.001$). There is also a significant relationship between the perception of the length of breastfeeding time needed and the discontinuation of breastfeeding ($P < 0.001$). There was a significant relationship between discontinued EBF and early return to work, indicating an early return as a barrier for EBF ($P = 0.006$). In addition, there was a significant relationship between discontinued EBF and being employed in breastfeeding-unsupported work ($P = 0.009$). Discontinued breastfeeding is significantly associated with the presence of difficulty of breastfeeding in front of people ($P < 0.001$).

Discontinued breastfeeding had significant association with negative answers in the following areas: concern if the baby takes enough feeding ($P = 0.001$), lack of confidence about the ability to breastfeed ($P < 0.001$), worry that some food that mothers eat will affect the baby's health ($P = 0.001$), pregnancy before completing the breastfeeding duration ($P = 0.037$), breastfeeding stress ($P < 0.001$), concern that breastfeeding will not positively affect babies weight compared to formula feeding ($P = 0.001$), nipple pain or soreness ($P = 0.032$), concern that medicines will be excreted in the breast milk ($P = 0.032$), bad breastfeeding experience in the past ($P < 0.001$), the benefits of EBF not having been discussed with the practitioners ($P = 0.011$), the methods of storing breast milk not being discussed with the practitioners (P < 0.001), not knowing whom to contact for help when faced with challenges with breastfeeding (P = 0.025), fear of distortion of breast shape after breastfeeding ($P = 0.001$), strong formula milk advertisement or influence of medical marketing representative ($P = 0.019$), and the presence of mother illness that prevented breastfeeding ($P = 0.001$).

Table 6: Breastfeeding friendly policy results (*n*=200)

Breastfeeding friendly policy items	Categories	*n*	%
Does your workplace have breastfeeding or breast milk-pumping place?	Yes	8	4.0
	No	192	96.0
Usually, do you pump the breast milk and/or do you breastfed your infant during the work time?	Yes	63	31.5
	No	137	68.5
In your workplace, are there breastfeeding hours during work time?	Yes	7	3.5
	No	193	96.5
Do you have a strict full-time schedule that did not make you freely use the nursing break?	Yes	79	39.5%
	No	121	60.5%
Does work contain facilities for storing breast milk, such as refrigerator?	Yes	45	22.5%
	No	155	77.5%

EBF=Exclusive breastfeeding

Table 7: Results for the association between breastfeeding friendly policy and continuity of EBF

	P
The presence of breastfeeding hours policy during work time vs continuing EBF after returning to work (p 0.026)	0.026
Ability to do breastfeeding or pumping during work time vs continuing EBF after returning to work (p< 0.001)	<.001
Ability to do breastfeeding or pumping during work time vs extend period of breastfeeding for six months (p<0.001)	<.001

Second: Association of discontinued EBF with any breastfeeding-feeding friendly policy:

Table 8 shows that there was a significant relationship between discontinued EBF and having previously breastfeeding (P<.001). In addition, there was a significant relationship between discontinued EBF and the duration of EBF being less than two months (P <.001). There was a significant relationship between discontinued EBF and EBF during a mother's maternal leave (P <.001).

Discussion

EBF is strongly recommended in the first 6 months of infant life to promote infant's, as well as the mother's, health provided that there is no medical contraindication to doing so.[1]

EBF involves integration of multi-aspected benefits to the infant and his mother, as well as providing a cost-effective way of infant feeding, by decreasing infant and mother illnesses as well as formula milk costs, respectively.[70] Achieving its benefits will happen with an increase in the effort to elevate EBF rates in society, and knowing the obstacles to EBF is one of the early steps to attain a high EBF rate.[71]

The purpose of this study was to identify the barriers affecting EBF among PHC-working mothers in the Al-Ahsa region of Saudi Arabia.

Demographic characteristics

The majority of participants are in the reproductive age group[15-49] as the mean age of the selected sample was 32.07 years.

The majority of the sample was at the education level of the university (61%) and higher (19%), and that reflects high educational levels of PHC-working mothers. Almost all the participants are married (95%).

The percentage of full-time work among participants was 83.5% and 87% of them did not have work shifts and this results was follow the PHC-working policy of MOH in Saudi Arabia.[72]

In regard to the distribution of participants working in each position, technicians accounted for a high percentage of the sample (51%), and this is expected as technicians' representation is high in healthcare institutions, as predicted by KSA health indicators at the 1437 year.[73]

Higher educational level among PHC-working mothers (defined as university and above) was noted to be significantly associated

Table 8: Association between discontinued EBF with EBF barriers or breastfeeding friendly policy

Have you continued EBF after returning to work?	Chi-square	*P*	Comment
Barriers			
Insufficient breast milk secretion	18.4	0	Yes
Concern if the baby takes enough feeding	10.6	0.001	No
Lack the confidence about the ability to breastfed	22.3	<0.001	No
Worry if some food that mothers eat will affect the baby's health.	11.5	0.001	No
Pregnancy before completing the breastfeeding duration	4.3	0.037	No
Breastfeeding stress	21.3	<0.001	No
Breastfeeding takes a long time from the mother schedule	15.6	<0.001	Yes
Formula feeding makes a good effect on babies weight in comparison to breastfeeding	11.4	0.001	No
Early returned to the work	7.4	0.006	Yes
Breastfeeding is difficult in front of peoples	15.3	<0.001	Yes
Nipples pain or sores	4.6	0.032	No
Take medicines that excreted in the breast milk	4.6	0.032	No
Bad breastfeeding experience in the past	12.4	<0.001	No
No work support to the breastfeeding mothers	6.7	0.009	Yes
The benefits of EBF were not discussed with the practitioners	6.5	0.011	No
The methods of storing breast milk were not discussed with the practitioners. No family or partner support	12.4	<0.001	No
You did not know how to contact for help when faced with challenges with breastfeeding	5	0.025	No
Fear of distortion of breast shape after breastfeeding	11.7	0.001	No
Strong formula milk advertisement or by influence of medical marketing representative	5.4	0.019	No
Presence of mother illness that prevent breastfeeding	10.5	0.001	No
Breastfeeding-friendly policy			
Do you have previous breastfeeding experience?	29	<0.001	Yes
If you have ever breastfed, how long did you exclusively breastfeed?	76.7	<0.001	<2 months
Do you exclusively breastfed during your maternal leave?	12.4	<0.001	Yes

EBF=Exclusive breastfeeding

with increased adherence to EBF. Similarly, in a cross-sectional study done in the United States it 2015, it was found that a higher educational level was positively associated with EBF rates.[18]

Breastfeeding behavior

In the present study, data shows that among PHC-worker mothers, 43.5% were observed to be exclusively breastfeeding for more than 6 months, and the initiation of formula feeding in 30% was started in less than 1 month of infant age. This percentage was better in comparison to many studies evaluating EBF rates in the general population, as a study done in Riyadh and Dammam cities both showed that EBF rates account for about 37%[50]; another study in Tabuk showed the rate of EFB was 31.4%, and in Abha also the rate below the target.[49]

The higher rate found in this study may be explained by the presence of high education levels in the study sample, with 61% educated at the university level and 19% possessing a higher degree. A US cross-sectional study in 2015 stated that higher educational level was positively associated with EBF rates.[18]

21% of the PHC-working mothers stopped breastfeeding completely after they reentered their work. This was an expected result, as early return to work decreases the likelihood of initiating and maintaining breastfeeding, as stated by the Early Childhood Longitudinal Study-Birth Cohort.[24] This was also found in previous studies: Jabari *et al.*[53] found that about 25.6% of working mothers stopped breastfeeding because of their work.

More than three quarters (79%) of PHC-working mothers in this study were observed to exclusively breastfeed their infants during their maternal leave periods. This high percentage may be explained by the effect of applying paid maternity leave toward improving EBF rates.[56]

As observed in Victora *et al.*, the discontinuation of breastfeeding happens in women who are ready to work.[56] A 20% reduction in the practice of EBF was observed in this current study sample (59.5%) after returning to work.

Barrier to breastfeeding

Many factors contributed to decreased breastfeeding rates, and/or the acceleration of its termination. The percentage of each item of the barriers that impeded the continuity of EBF varies in PHC-working mothers, as is observed in this research.

The most common barrier was an early return to the work (69.5%, $P = 0.006$). This is also observed nationally: early return to work (defined as a return within 6 months of giving birth) decreased the initiation and duration of breastfeeding.[24]

Supplying workplaces with the necessary support systems to encourage EBF to increase its rates,[60] and this may explain why deficient work support for breastfeeding (66%, $P = 0.009$) accounted for the next most common barrier to EBF in this current study.

Insufficient breast milk was a third barrier to EBF found in this study (43.5%, P <.001). The WHO stated that the frequency of breast suckling by infants is the primary factor for milk production,[74] and according to a study done in Makkah, there is low percentage of latching-on practice by Saudi mothers[75] which may explain these results.

In the first days of an infant's life, the frequency of breastfeeding maybe every 1 to 3 h,[76] the time needed for each breastfeeding session range from 10–15 min,[77] and the mother may need 15-20 min for breast pumping.[78] This indicates why mothers reported the long time needed for breastfeeding as the fourth most significant barrier to EBF in this study (42.5%, P <.001).

A cross-sectional survey done on a total of 517 Saudi mothers at 2016, stated that the most common reason for stopping breastfeeding was insufficient breast milk (25.9%), followed by getting pregnant while breastfeeding (19.7%), then being a working mother (15.9%).[30]

Remaining barriers are found in small percentages among PHC-working mothers. Thirty-eight percent of them reported being embarrassed by breastfeeding in front of people, 36.5% felt that breastfeeding is a stressful duty, 26% have concerns about if their infant will receive enough nutrition through breast milk, 25% did not know who to contact for help in the presence of breastfeeding challenges, 23.5% felt that formula feeding had a good effect on infant weight, 22% suffered from nipple pain or sores, 20% were busy with another pregnancy, 19% of them did not receive breast milk storing methods from their practitioners, there was no family or partner support in 18% of the sample, 16% of them lack self-confidence about the ability to breastfed, they were given insufficient information about long term benefits and short term benefits of EBF on infants presented in 15.5% and 14% of respondents, respectively, EBF benefits to the mothers were not known in 13.5% of study sample, 13.5% of mothers were worried about their own food ingestion, 13.5% did not receive information about breastfeeding benefits from practitioners, 13% suffered from strong formula milk marketing, 12.5% worried about breast shape changes with breastfeeding, 10.5% had bad breastfeeding experiences in the past that affect continuity of the current breastfeeding experience, infant and mother illnesses were affecting continuity of EBF in 9% and 7.5%, respectively, and 7.5% of the participants were worried about medicines are taken by the mother.

Breastfeeding friendly policy

In the global breastfeeding scorecard, done in 2018 by global breastfeeding collective, it was found that the current rate of countries that provide the recommended length of maternity leave is 12%,[35] and as it was mentioned in the KSA ministry of labor, working mothers had the right to get paid maternity leave for 4 weeks before the expected date of delivery, and 6 weeks following childbirth.[79] In addition, she should get an hour break for nursing purposes during work time.[79]

In PHC, as it is the field of this study, a majority of working mothers (96.5%) stated that there were no breastfeeding hours during work time. Similarly, 96% of them stated that their workplace did not have breastfeeding or breast milk-pumping place. About two-thirds of women (68.5%) stated that they keep pumping their breast milk and/or they breastfeed their infant during the workday.

Of PHC-working mothers, 60% stated that they have strict full-time schedules that prevent them from freely using their nursing breaks, and 77.5% of them claim that there are no facilities for storing expressed breast milk in their workplace.

Alhabas M, in a retrospective study in 2016, found that 43.59% of working mothers in Riyadh reported that there were no breastfeeding hours during work time, and 64.55% they did not know if there were work policies provided to working mothers for breastfeeding support or not; 95.20% of respondents stated that there was no breastfeeding or breast milk pumping place in their workplace.[80]

In this study, the effect of work policies on breastfeeding was found to be significant in improving breastfeeding practices. The existence of breastfeeding hours during PHC working time was significantly associated with the continuation of EBF after returning to the PHC workplace (P = 0.026). Breastfeeding at work in the PHC by lactating mothers had a highly significant association with the duration of EBF for six months (P <.001) as well as improved rates of the continuation of EBF after returning to work at the PHC (P = 0.001).

In PHC-working mothers, the initiation of formula feeding was significantly related to early returns to work (P = 0.034).

After resting from the strain of giving birth, the working mother in the primary health centers in Al-Ahsa begins to face the challenges of maintaining a regimen of EBF.

This study evaluates the barriers that PHC-working mothers faced in general when they tried to continue EBF, and in their workplace in specific. Even in presence of such a large percentage of high education levels among health care-working mothers, and even with the practical knowledge associated with working in the health system, it is not necessary to the participants to be fully aware of health aspects of EBF, as a number of participants are lacking in this information. Unfortunately, the participant knowledge of the health effects of EBF cannot be assessed based on this kind of study.

Being a cross-sectional study, those barriers that were found to be significantly present cannot be definitively identified as the cause of termination of breastfeeding, as this study only finds the associations between dependent and independent variables. The collected information evaluated the situation only in the time the study was conducted, and it was difficult to analyze trends of the problem over time.

Conclusion

EBF among PHC-working mothers in Al-Ahsa is at an acceptable level, as nearly half of them exclusively breastfed. However, formula intrusion in the infant feeding method appeared early after birth in a considerable percentage of them.

The most pervasive barrier to EBF was an early return to work, followed by deficient work support for breastfeeding. Insufficient breast milk was a third barrier to EBF found in this study, and the fourth barrier to EBF was a lack of time to commit to the process of breastfeeding.

Lack of nursing breaks, lactation places, and expressed milk storing facilities inside PHCCs are the major work-related barriers to continuity of EBF. A majority of PHC-working mothers in Al-Ahsa are aware about EBF's benefits, although nearly half of them stop breastfeeding after they rejoin the workforce. Although most of the PHC workers have no work shifts, the majority complained about strict work times that prevented them from freely using their nursing breaks.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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