FACTORS ASSOCIATED WITH BREASTFEEDING IN WESTERN OF SAUDI ARABIA

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Anwaar Shahbar

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ABSTRACT

Background information: The recommendation for optimal breastfeeding duration in the Kingdom of Saudi Arabia (KSA) is based firstly on the Quran and then the World Health Organisation (WHO) recommendation. The rate of initiation of breastfeeding in Saudi Arabia is over 90%, with the early introduction of infant formula.

Objective: To investigate breastfeeding practices at birth and one month postpartum and its association with the BFHI status of the hospital where delivery occurred, and with women's intentions, self-efficacy, knowledge and attitudes, previous experience, support, and discouragement for breastfeeding.

Study design: Longitudinal study with data collection at baseline and follow-up at one month postpartum.

Method: Women were recruited from two private hospitals in Jeddah, one of these hospitals has baby friendly hospital policies (BFHI). A semi-quantitative questionnaire was used for collecting data by face-to-face interviews with women in the hospital after giving birth and by a phone interview at one month postpartum. SPSS was used for statistical analysis.

Results: One hundred and two women completed the baseline survey, and 77 women completed the study at one month (36 from the BFHI and 41 from the non-BFHI). At baseline, 77% women at the BFHI hospital had introduced breast milk as first nutritive substance, while only 7% of women in the non-BFHI

hospital did. However, at one month postpartum, mixed-feeding was the most common feeding method (58%), and there was no difference in feeding method between women in both hospitals. All Egyptian women in the sample (n= 10) were fully breastfeeding at one month, and Saudi women were more likely to use mixed-feeding. Breastfeeding attitudes, self-efficacy, and previous experience were related to breastfeeding practice at one month. Considering all variables, logistic regression found that breastfeeding self-efficacy was the only variable associated with breastfeeding practice at one month, and women with a higher score were more likely to be exclusively, fully, or predominantly breastfeeding at one month (p= 0.001).

Conclusion: The BFHI was found to be effective in making breast milk the first nutritive substance infants received, and in encouraging early breastfeeding initiation. Breastfeeding self-efficacy was the strongest predictor of breastfeeding intention and practice at one month.

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LIST OF ABBREVIATIONS

American Academy of Paediatrics	AAP
Baby Friendly Hospital Initiative	BFHI
Breastfeeding Self-Efficacy Scale	BSES
Breastfeeding Self-Efficacy Scale Short Form	BSES-SF
International Medical Centre	IMC
Iowa Infant Feeding Attitude Scale	IIFAS
Kingdom of Saudi Arabia	KSA
Ministry of Civil Service	MCS
New Zealand Ministry of Health	NZMOH
Oral Rehydration Salts	ORS
Saudi Arabia Ministry of Health	SAMOH
Saudi Germany hospital	SGH
Soliman Fakeeh	SF
Statistical Package for Social Science	SPSS
Theory of Planned Behaviour	TPB
United Nations Children's Fund	UNICEF
United States of America	USA
World Health Organisation	WHO

CHAPTER 1 **: INTRODUCTION**

1.1. Introduction

Breastfeeding is the best way to provide young infants with the nutrients they need for healthy growth and development (WHO, 2012). Breastfeeding is important and strengthens the bond between mothers and their infants (Raisler et al., 1999; Weinstein et al., 2006). Furthermore, breastfeeding has many other advantages for mothers and infants. The benefits for mothers include: a reduction in the incidence of breast and ovarian cancer (Weinstein et al., 2006; UNICEF, 2008; Stuebe & Schwarz, 2010), more rapid maternal weight loss after giving birth (WHO, 2001; Stuebe & Schwarz, 2010; WHO, 2011a), reduced incidences of cardiovascular disease and hypertension (Stuebe & Schwarz, 2010), delayed restart of the menstrual cycle and ovulation, and fecundity (WHO, 2011a). Benefits for infants include: a significant reduction in the incidence of childhood infections such as gastrointestinal infections, significant reductions in developing asthma and ear infections, and a decreased risk of later obesity for infants who are exclusively breastfed for six months (WHO, 2001; Weinstein et al., 2006; UNICEF, 2008; Stuebe & Schwarz, 2010; WHO, 2011a). In addition to the benefits for mothers and their infants, breastfeeding is also associated with economic and environmental benefits (Raisler et al., 1999). Despite all these benefits, many mothers discontinue exclusive breastfeeding before six months or any breastfeeding between 6-24 months (WHO, 2011b).

Prior to 2001, the World Health Organisation (WHO) recommendation for breastfeeding was to exclusively breastfeed for 4-6 months with the introduction of complementary food beyond 4 months, and to continue breastfeeding with appropriate complementary foods up to 2 years of age. In 2001, the WHO set a new recommendation that recommended mothers exclusively breastfeed infants for 6 months and continue breastfeeding with appropriate complementary foods for up to 2 years of age (WHO, 2001). This recommendation was adopted by numerous of health organisations around the world such as American Academy of Paediatrics (AAP), Saudi and New Zealand Ministries of Health and UNICEF.

In Saudi Arabia, however, the recommendation for the overall duration of breastfeeding, without specifying the type of breastfeeding e.g. exclusive, fully, or partial breastfeeding, is based on the Quran or the hadiths (saying of Prophet Mohammed, peace be upon him) (Al-Jassir et al., 2006). According to the Quran, *the cow*, verses 233, it is ideal for the mother to breastfeed the child for 2 years, but the parents may choose to stop earlier if the mother does not have the ability to continue, or they may choose to hire the services of a wet nurse. In addition, the Saudi Arabian Ministry of Health (SAMOH) also adopted the WHO recommendation for optimal duration of any breastfeeding and exclusive breastfeeding for 6 months (Saudi Arabian Ministry of Health, 2012).

Despite the many benefits of breastfeeding for mothers and infants, the rates for the initiation of breastfeeding vary in developed countries. Initiation in Europe, Australia, and Saudi Arabia is higher than New Zealand, Canada and the USA with 74-99 % in Europe (Callen & Pinelli, 2004), 91-97% in Australia (Callen &

Pinelli, 2004), 91.6% in Saudi Arabia (Mouzan et al., 2009), compared to approximately 80% in New Zealand (Maori and Pacific people have lower rate) (Ministry of Health, 2009), 69-83% in Canada (Callen & Pinelli, 2004), and 27-69% in the USA (Callen & Pinelli, 2004).

This study will focus on breastfeeding in Saudi Arabia. Many studies have investigated the breastfeeding initiation rate as well as the breastfeeding patterns in Saudi Arabia. In general, it was reported that Saudi Arabia is a country with a high breastfeeding initiation rate, which implies the willingness of Saudi women to breastfeed (Al-Jassir et al., 2003; Mouzan et al., 2009). However, even though Saudi Arabia has a high initiation rate which is over 90%, this rate drops to approximately 49% at 1 month, 36% at 2 months, 20.5% at 4 months, 10% at 6months, and 1.8% at 12 months (Mouzan et al., 2009).

Many studies conducted in Saudi Arabia suggested that breastfeeding education is needed and important for Saudi women (Al-Othman et al., 2002; Al-Jassir et al., 2006; Murshid, 2006; El-Gilany, 2010) and is needed to correct some of the misperceptions about breastfeeding (Bella, 1997; Bella, 1998). In addition, it has been reported that Saudi women have a lack of breastfeeding education and information about the nutritional benefits of breastfeeding, which may motivate mothers to breastfeed their babies (Batterjee, 2009). Study conducted in 2009 by Habib et al. that examined the antenatal care in primary health centres in Medina, in the western part of Saudi Arabia, found that health promotion, which included counselling on new-born care and breastfeeding, had the best scores on tasks performed at the antenatal care (Habib et al., 2011).

1.2. Baby Friendly Hospital Initiative (BFHI)

The Baby Friendly Hospital Initiative (BFHI) was first developed in 1991 by UNICEF and WHO and has since been adopted by 20,000 hospitals in 156 countries worldwide (WHO, 2009). The BFHI consists of 10 points which leads to successful breastfeeding:

- Have a written breastfeeding policy that is routinely communicated to all health care staff.
- Train all health care staff in skills necessary to implement this policy.
- Inform all pregnant women about the benefits and management of breastfeeding.
- Help mothers initiate breastfeeding within one half-hour of birth.
- Show mothers how to breastfeed and maintain lactation, even if they should be separated from their infants.
- Give new-born infants no food or drink other than breast milk, unless medically indicated.
- Practice rooming in - that is, allow mothers and infants to remain together 24 hours a day.
- Encourage breastfeeding on demand.
- Give no artificial teats or pacifiers (also called dummies or soothers) to breastfeeding infants.

- Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic (UNICEF, n.d.).

The BFHI has proved its effectiveness in many aspects related to breastfeeding. The adaption of the BFHI increased the breastfeeding initiation and exclusive breastfeeding rates in the United States (Philipp et al., 2001; Merewood et al., 2005), Scotland (Broad foot et al., 2007), Brazil (Braun et al., 2003; Venancio et al., 2012), and Italy (Cattaneo & Buzzetti. 2001).

Reviews investigating the effectiveness of the BFHI, reported that the BFHI had a significant effect in extending the breastfeeding duration and its exclusivity, reduced breastfeeding complications and increased both mothers' and infants' health outcomes such as reduced the incidence of gastrointestinal disease (Radford, 2006; Martens, 2012).

In Saudi Arabia, the BFHI was first applied in 1992 in the capital, Riyadh, and technically started in 1995 after training from the WHO. In 1998, about 15 hospitals in Riyadh were considered and classified as BFHI hospitals (Baldo et al., 2001). However, no published study has yet analysed the effectiveness of the BFHI in Saudi Arabia.

CHAPTER 2 : **REVIEW OF THE LITERATURE**

2.1. Definitions of breastfeeding

The Ministry of Health (MOH) in Saudi Arabia is using the WHO breastfeeding definitions. The WHO has set definitions for different types of breastfeeding as presented in Table 2.1. The New Zealand Ministry of Health (NZMOH) has similar definitions for breastfeeding (see table 2.2) (NZ Ministry of Health, 2002). The definition for exclusive breastfeeding is the same in both organisations, the WHO and NZMOH. However, there is a difference between WHO and NZMOH definitions for predominant breastfeeding as defined by the WHO and full breastfeeding as defined by the NZMOH is shown in Table 2.1 and Table 2.2. Full breastfeeding includes feeding infants with only minimal amount of water in addition to the breastfeeding, whereas predominant breastfeeding includes breast milk as the predominant source of nourishment but babies may receive other liquids, such as juice, but no formula is given.

Table 2.1: WHO breastfeeding definitions

Breastfeeding types	Definition
Exclusive breastfeeding	"No other food or drink, not even water, except breast milk (including milk expressed or from a wet nurse) for 6 months of life, but allows the infant to receive ORS, drops and syrups (vitamins, minerals and medicines)" (WHO, 2014a).
Predominant breastfeeding	"The infant's predominant source of nourishment has been breast milk (including milk expressed or from a wet nurse as the predominant source of nourishment). However, the infant may also have received liquids (water and water-based drinks, fruit juice) ritual fluids and ORS, drops or syrups (vitamins, minerals and medicines)" (WHO, 2014a).
Mixed or partial	Infants feeding with breast milk, and allow them to receive

feeding	"Breastfeeding while also receiving water-based drinks, food-based fluid, semi-solid or solid food or non-human milk (also called partial breastfeeding). Mixed feeding only refers to the first six months of life. From six months of age, all infants need additional complementary foods to enable normal growth and development (WHO, 2014b).
Complementary feeding	"Infants should start receiving foods in addition to breast milk from 6 months onwards. It should be adequate, meaning that the complementary foods should be given in amounts, frequency, consistency and using a variety of foods to cover the nutritional needs of the growing child while maintaining breastfeeding" (WHO, 2014c).
Any breastfeeding	Infants must receive breast milk and allow them to receive any food or drink Dettwyler. (2004).
Bottle feeding	Any liquid (including breast milk) or semi-solid food from a bottle with nipple/teat (WHO, 2014d).

Table 2.2: The New Zealand's Ministry of Health breastfeeding definitions

Breastfeeding types	Definition
Exclusive breastfeeding	Infants are feed with only breast milk and not given any water, formula, any other food or drinks for the first 6 months of life, but allows the infant to receive Oral Rehydration Salts (ORS), drops and syrups, vitamins, minerals and medicine
Full breastfeeding	Infants are feed with only breast milk, minimal amount of water or prescribed medicine but not given any other food or liquids within the past 24 hours
Partial breastfeeding	Infants are feed with some breast milk, some infants formula, or other solids within the past 24 hours
Artificial feeding	Infants are not receiving any breast milk and feed with infant formula or any alternatives such as solid food within the past 24 hours

Source NZMOH. (2002)

In Saudi Arabia, for studies investigating breastfeeding, some have used the WHO definitions e.g. Amin et al. (2011), while others have used different definitions e.g. Al-Ayed and Qureshi, (1998) who defined exclusive breastfeeding as infant fed with breast milk plus semisolids (no infant formula), mixed-feeding as infant fed with breast milk, formula and semisolids, and exclusive bottle feeding as infant fed with formula plus semisolids. Some Saudi studies did not define breastfeeding terms used in their studies, e.g. studies

conducted by Al-Welaie et al. (2010), El-Gilany. (2010), and Fida and Al-Aama, (2003).

2.2. Breastfeeding patterns in Saudi Arabia

Breastfeeding patterns in Saudi Arabia have shown a high initiation rate of breastfeeding, of over 90% (Al-Shehri et al., 1995; Fida & Al-Aama, 2003; Shawky & Abalkhail, 2003; Al-Jassir et al., 2004; Al-Jassir et al., 2006; Al-Hreashy et al., 2008; Mouzan et al., 2009). However, there is a decline in exclusive breastfeeding with the early introduction of infant formula, resulting in mixed-feeding as the most common feeding method used among Saudi women (Mouzan et al., 2009) (see Appendix 1). Some of the studies have included both Saudi and non-Saudi women (Al-Ayed & Qureshi, 1998; Shawky & Abalkhail, 2003; Al-Jassir et al., 2006). Therefore, results of breastfeeding outcomes could be affected by ethnicity, as reported by Al-Jassir et al. (2006), that Saudi mothers were more likely to introduce infant's formula earlier than non-Saudi women.

Some studies have clearly defined breastfeeding categories (Al-Ayed & Qureshi, 1998; Mouzan et al., 2009; Amin et al., 2011), but many studies have not (Al-Shehri et al., 1995; Fida & Al-Aama, 2003; Murshid, 2006; Al-Madani et al., 2010; Al-Welaie et al., 2010; El-Gilany, 2010) which makes it difficult in reviewing and distinguishing the different breastfeeding patterns in Saudi Arabia. Almost all studies were cross-sectional studies such as, Al-Ayed & Qureshi (1998) and Al-Hreashy et al. (2008). Many studies recruited subjects during the routine visits for vaccination which is not a very good way to get a

random sample as most people were from lower socio-economic level such as studies by Al-Jassir et al. (2004) and Al-Hreashy et al. (2008).

2.2.1. Initiation of breastfeeding in Saudi Arabia

Saudi Arabia is a Muslim country and, as mentioned, in the holy book the Quran, *the cow*, verses 233, it is ideal for the mother to breastfeed the child for two years, but the parents may choose to stop earlier if the mother does not have the ability to continue, or they may choose to hire the services of a wet nurse. Therefore, high breastfeeding initiation rates are reported in numerous national surveys conducted in different regions of Saudi Arabia. Nationwide studies by Mouzan et al. (2009) and Al-Jassir et al. (2006) both reported initiation rate of 92%. Regional studies reported breastfeeding initiation with 98.9% (Al-Jassir et al., 2004) and 95% (Al-Hreashy et al., 2008) in Riyadh (central region), 94% (Shawky & Abalkhail, 2003) 90% (Fida & Al-Aama, 2003) in Jeddah (western region), and 91.9% (El-Gilany et al., 2012) in Al-Hassa (eastern region). High initiation rates reveal the willingness of Saudi mothers to breastfeed.

2.2.2. Timing of breastfeeding initiation in Saudi Arabia

The WHO recommends initiating breastfeeding within the first hour postpartum (WHO, 1991), to ensure that infants receives the first milk ‘colostrum’ and improve lactation and milk flow (WHO, 2014e). In a Saudi nationwide survey, 23.2% initiated breastfeeding within first hour postpartum (Mouzan et al., 2009).

There are some regional variations as shown in Table 2.3. Al-Othman et al., (2002) conducted a survey in the central region of Saudi Arabia and found that one third of women initiated breastfeeding immediately postpartum, and half of them initiated breastfeeding during first six hours postpartum. In studies undertaken in the eastern region, only 11% of women initiated breastfeeding within the first hour postpartum (Amin et al., 2011; El-Gilany et al., 2012).

However, breastfeeding initiation was delayed from two to 23 hours among 35.5% of women in study by El-Gilany et al. (2012), and 77.8% in a study by Amin et al. (2011). In addition, delayed initiation was between 24 and 72 hours postpartum up to 35.0% (El-Gilany et al., 2012) and 13.1% (Amin et al., 2011).

Table 2.3: Timing of first breastfeeding

	Regions		
Time	Nationwide %	Central %	Eastern %
1 hour	23.2 (Mouzan et al., 2009)	33 (Al-Othman et al., 2002)	11.4 (El-Gilany et al., 2012) 11.2 (Amin et al., 2011)
2- 23 hours	76.8 (Mouzan et al., 2009)	-	35.5 (El-Gilany et al., 2012) 77.8% (Amin et al., 2011)
24- 72 hours	-	-	35 (El-Gilany et al., 2012) 13.1 (Amin et al., 2011)

2.2.3. Exclusive breastfeeding in Saudi Arabia

National data about breastfeeding patterns in Saudi Arabia were reported in 1991 and 1996. The WHO collected data in 1991 and reported that 55% of

Saudi mothers were exclusively breastfeeding infants under four months old (WHO, 2011b). UNICEF collected data in 1996 and 31% of women were exclusively breastfeeding between four and six months (UNICEF, 2009). Other nationwide studies report similar exclusive breastfeeding rates: 53% at five months or less (Al-Shehri et al., 1995), 31.5% between four and six months of infant age (Murshid, 2006), 38% during period between six and 12 months, and dropped to 18% after one year of infant life[1]. A nationwide study found that mothers living in different regions reported different breastfeeding practices. For example, it was reported that mothers from the western region were more likely to exclusively breastfeed (28.4%) compared with mothers from the central (20.4%), northern (19.4%), eastern (18.4%) region. Mothers in the south-western region were found to be least likely to exclusively breastfeed (13.4%) (Murshid, 2006) (see table 2.4).

Regional studies which have been carried out in eastern regions (Al-Hassa and Al-Khobar) found that the percentage of exclusive breastfeeding was 64% at two months (El-Gilany, 2010), 23% at six months (Al-Madani et al., 2010), and dropped to 14.1% at one year of age (El-Gilany, 2010). Further regional studies found 48.8% exclusively breastfeed at birth (Al-Kordy et al., 1992) in Al-Jamoom (rural of western region), 32.4% in Riyadh at three months (Al-Ayed & Qureshi, 1998), and 31.7% in Al-Jamoom (Al-Kordy et al., 1992), 22.1% (Al-Ayed & Qureshi, 1998) (see table 2.4). The differences were may in part be explained by the breastfeeding definitions being used.

[1] Some studies defined exclusive breastfeeding as giving no formula but giving any other food or drinks

Table 2.4: Exclusive breastfeeding rates on different region of Saudi Arab

	Regions			
Infants age	Nationwide % (n)	Eastern % (n)	Western % (n)	Central % (n)
≤2 months ***at 2 months**	-	32.9 (211) (Amin et al., 2011)* 64 (1279) (El-Gilany et al., 2010)*		-
<4 months ***at 4 months** ****2- 4 months**	31 (UNICEF, 1996) 55 (WHO, 1991)	19 (123) (Amin et al., 2011)* 44.4 (864) (El-Gilany et al., 2010)*	48.8 (20) (Al-Kordy et al., 1992)	32.4 (48) (Al-Ayed & Qureshi, 1998)
<6 months ***at 6 months** ****4- 6 months**	31.5 (45) (Murshid, 2006)** 31(UNICEF, 1996) 53 (443) (Al-Shehri et al., 1995)	12 (78)) (Amin et al., 2011)* 23 (17) (Al-Madani et al., 2010)* 24 (465) (El-Gilany et al., 2010)*	34 (Al-Kordy et al., 1992)**	1.7 (10) (Al-Hreashy et al., 2008) 22.1 (21) (Al-Ayed & Qureshi, 1998)
Breastfeeding and no formula				
≤12 months ***at 12 months** ****6- 12 months**	21.8 (58) (Murshid, 2006)** 38 (362) (Al-Shehri et al., 1995)**	14 (263) (El-Gilany et al., 2010)*	21 (Al-Kordy et al., 1992)**	17.3 (9) (Al-Ayed & Qureshi, 1998)
≤24 months *** at 24 months** ****12- 24 months**	19.5 (98) (Murshid, 2006)** 18 (538) Al-Shehri et al., 1995)**	-	-	0 (0) (Al-Ayed & Qureshi, 1998)

2.2.4. Introduction of formula in Saudi Arabia

Nationwide surveys have reported the introduction of formula by 51% of women at one month (Mouzan et al., 2009), 48% - 76.1% at three months (Murshid, 2006; Al-Jassir et al., 2006), and 98% at 12 months (Mouzan et al., 2009).

Mixed-feeding is the most popular feeding pattern in Saudi Arabia for infants aged less than 5 months (Al-Othman et al., 2002; Al-Jassir et al., 2003; Ogbeide et al., 2004; Al-Jassir et al., 2006; Batterjee, 2009; Al-Welaie et al., 2010). A nationwide study by Murshid (2006) found that overall (infants aged between 4- 6 months) the mixed-feeding rate was 42% and he reported that the proportion of mothers who used mixed-feeding was highest in the central region (33.6%) and lowest in the eastern region (12.5%) of Saudi Arabia. Al-Jassir et al. (2006) reported 76% of infants were mixed feeding at three months.

In central Riyadh studies have reported rates of mixed-feeding at six months with 78.8% (Al-Hreashy et al., 2008), and in Al-Khobar 52% (Al-Madani et al., 2010). Studies conducted in the eastern region by El-Gilany. (2010) reported that mixed-feeding rates were 30.7% at two months and rose to 58.2% at one year of age. In addition, in Al-Khobar (eastern region), Al-Yousif et al. (2011) reported that 79.5% of mothers were using mixed-feeding, even though they reported having good knowledge and attitudes about breastfeeding (see table 2.5). Indeed, the introduction of formula led to a fast reduction of breastfeeding, which likely resulted in the failure of breastfeeding (Mouzan et al., 2009).

Exclusive formula feeding was the most common feeding pattern used by mothers at one year in a nationwide study conducted by Murshid. (2006) with 54%, and 78% by Mouzan et al. (2009). Murshid. (2006) found that exclusive formula feeding was more common among mothers from central region (43%) and less common among mothers from western and eastern regions (13.4%).

2.2.5. Introduction of solids in Saudi Arabia

In cross-sectional Saudi studies it was reported that the majority of women introduced solids earlier than six months (Shawky & Abalkhail, 2003) with over 70% in a study done in Riyadh by Al-Shehri et al. (1995). More recent studies reported the introduction of solids between three and six months with 80.8% (Mouzan et al., 2009), and 89% (Al-Hreashy et al., 2008).

Table 2.5: Mixed-feeding rate on different region of Saudi Arabia

		Region		
Infants age	Nationwide % (n)	Eastern % (n)	Western % (n)	Central % (n)
≤2 months ***at 2 months**	-	43 (276)) (Amin et al., 2011)* 30.7 (613) (El-Gilany et al., 2010)*	-	-
<4 months ***at 4 months** ****2- 4 months**	-	48.7 (312)) (Amin et al., 2011)* 46.7 (910) (El-Gilany et al., 2010)*	44 (77) (Al-Kordy et al., 1992)**	-
<6 months ***at 6 months** ****4- 6 months**	42 (60) (Murshid, 2006)** 34 (284)) (Al-Shehri et al., 1995)	49.8 (319)) (Amin et al., 2011)* 52 (38) (Al-Madani et al., 2010)* 57.9 (1103) (El-Gilany et al., 2010)*	30 (Al-Kordy et al., 1992)**	78.8 (Al-Hreashy et al., 2008)*
≤12 months ***at 12 months** ****6- 12 months**	31 (266) (Murshid, 2006)** 29 (276)) (Al-Shehri et al., 1995)	34 (218)) (Amin et al., 2011)* 58.2 (1084) (El-Gilany et al., 2010)*	26 (Al-Kordy et al., 1992)**	-
≤24 months *** at 24 months** ****12- 24 months**	25.6 (129) (Murshid, 2006)** 6 (180)) (Al-Shehri et al., 1995)	18 (117)) (Amin et al., 2011)*	-	-

2.2.6. Duration of breastfeeding in Saudi Arabia

A cross-sectional Saudi national study which recruited subjects from 5 different regions (central, north, south, east, and west), indicated that 76.1% of mothers continue to breastfeed at three months (Al-Jassir et al., 2006). Older national data from the Gulf Family Health survey (as cited in UNICEF, 2009) conducted in 1996 indicated that 59% of mothers continue to breastfeed between 12 and 15 months, and 30% continue breastfeeding between 20 and 23 months of infant age (UNICEF, 2009).

2.2.6.1. Changes in duration overtime in Saudi Arabia

Studies conducted during the 1990s reported the mean duration for breastfeeding at between 11 and 17 months. For example, a nationwide study by Al-Shehri et al. (1995) reported a mean duration of breastfeeding of 11 and 13 months in urban and rural areas respectively, and the mean duration of 14.61± 3.53 months was reported in a rural city in the western region of Saudi Arabia (Al-Kordy et al., 1992). A nationwide study by Al-Jassir et al., (2006) which was conducted in the 2000s reported that the mean duration of breastfeeding was 6.57 months. Regional studies that were conducted during the 2000s also found mean duration of any breastfeeding to be about six months, for example in the western region the mean duration was 6 months (Shawky & Abalkhail, 2003) and in the central region was 6.57± 5.17m (Al-Jassir et al., 2004) regions. It was clear that during the last decade breastfeeding duration has declined which has raised concerns (Fida & Al-Aama, 2003).

The various studies show that mean duration of breastfeeding has decreased over the past 20 years. This is hypothesised to be due to urbanisation and the changes in the socioeconomic status. It was reported that mothers living in rural areas were more likely to breastfeed than mothers living in urban areas (Al-Jassir et al., 2003; El-Gilany, 2010). Industrial development has elevated socioeconomic status and this has led to the adoption of new life-styles and changed nutritional habits (Al-Shoshan, 2007). Amin et al. (2011) reported that due to the change in status (socioeconomic and educational level and employment opportunity), Saudi women are currently becoming more educated and undertake employment, and they are becoming less accepting of their professional life being affected by motherhood (Ghubashet al., 1992; Al-Nahedh & Morley, 1994).

2.2.7. Intention of breastfeeding in Saudi Arabia

Al-Welaie et al. (2010) and Al-Madani et al. (2010) not only assessed feeding methods but also assessed women's breastfeeding intention and attitudes in Riyadh (central region) and Al-Khobar (western region). Al-Welaie et al. (2010) interviewed women postpartum during hospitalisation and found that 38.2% of mothers planned to use exclusive breastfeeding in first few weeks postpartum, but most women (48.5%) planned to use mixed-feeding to feed their infants (Al-Welaie et al., 2010). Al-Madani et al. (2010) assessed woman's intentions during pregnancy and their practice after delivery and found their intentions were far different from their real practice. Although 90% of women planned to exclusively breastfeed, only 23% of women were exclusively breastfeeding at

six months postpartum, which is similar to what was found in global study by Perrine et al. (2012). It was reported in Al-Madani et al. (2010) that there is a positive significant relationship between mother's intentions and behaviour toward breastfeeding, but the percentages above show that intentions alone are not sufficient to predict a mother's behaviour.

2.2.8. Summary

Overall, Saudi women were found to have high breastfeeding initiation rates, but with the early introduction of formula feeding. In recent years, mixed-feeding was found to be the most common feeding method Saudi women used, which may lead to early cessation of breastfeeding. Furthermore, the mean duration of breastfeeding is fallen to around six months. Although evidence suggests that women intend to breastfeed longer.

2.3. Reasons and factors associated with discontinuing exclusive or any breastfeeding

Globally, many factors are reported to be associated with not meeting exclusive breastfeeding recommendations (Turner et al., 1999; Heath et al., 2002; Henderson et al., 2003; Ahluwalia et al., 2005; Li et al., 2008). Many studies have measured different aspects of breastfeeding. Some studies investigated the overall breastfeeding patterns, and some asked about reasons for either stopping breastfeeding before two years or shifting from exclusive breastfeeding to mixed-feeding. Most studies are quantitative and investigated real practice, however a few are qualitative and investigated women's breastfeeding

intentions. Two Saudi studies investigated women's attitudes regarding some breastfeeding facts. Appendix 1 includes descriptions for each study including sample size, region, and feeding patterns. For the literature review of this study, the reasons for discontinuing breastfeeding that were identified in an Australian study conducted by Li et al. (2008) are used as the framework. Self-reported reasons for discontinuing breastfeeding during first year were categorised as: 1) lactation, 2) milk pumping, 3) psychological, 4) nutritional, 5) medical, 6) infant's self-weaning, and 7) lifestyle factors (Li et al., 2008).

2.3.1. Lactation factors

Lactation factors associated with reduced breastfeeding included sucking and latching on problems, bleeding or sore nipples, breast mastitis, and painful breastfeeding. Lactation factors were one of the top three factors reported by mothers in Australia (Li et al., 2008). Lactation factors were cited in Saudi studies as less common reasons for shifting from exclusive breastfeeding: breast infection (3%) (Al-Madani et al., 2010), and also as reasons for stopping breastfeeding: breast disease (1.8%) (Al-Kordy et al., 1992; Mouzan et al., 2009) and cracked nipples (10.7%) (Al-Shehri et al., 1995). Research suggests that the number of Saudi mothers who stopped breastfeeding due to suffering from lactation factors, such as breast infections and sore nipples, is very low.

2.3.2. Psychological factors

Psychological factors associated with reduced breastfeeding include: breastfeeding being too tiring and inconvenient, household duties, needing

someone else to be able to feed the baby, wanting to go out, and concerns around breastfeeding in public (Li et al., 2008). Psychological factors that made women shift from exclusive breastfeeding as reported in Saudi studies included mothers wanting to be able to go out (7%) (Batterjee, 2009; Al-Madani et al., 2010), and mother's absence (18.3%) (Al-Jassir et al., 2006). Psychological reasons associated with women discontinuing breastfeeding were: breastfeeding being inconvenient (10%), being tired, or did not like breastfeeding (19.8%), household duties (16.5%), mothers needed someone else to feed the baby (11.4%), and someone else wanted to feed the baby (10.7%) (Al-Welaie et al., 2010).

Above studies revealed that psychological factors were impacting on women's decision about breastfeeding.

2.3.3. Nutritional factors

Nutritional factors included: breast milk alone does not satisfy the baby, mother's belief that she does not have enough milk supply, advice from a health professional or own belief that the baby was not gaining enough weight, and problems with getting milk flow started (Li et al., 2008). The most common single reason for stopping breastfeeding or introducing formula for Saudi mothers is the perceived lack of sufficient milk supply with the percentage ranging between 30% and 65% (Al-Kordy et al., 1992; Al-Shehri et al., 1995; Al-Ayed & Qureshi, 1998; Fida & Al-Aama, 2003; Al-Jassir et al., 2004; Al-Jassir et al., 2006; Batterjee, 2009; Mouzan et al., 2009; Al-Madani et al., 2010; Al-Welaie et al., 2010; Mossalli et al., 2012). Most studies found the prevalence of

not enough milk to reduce breastfeeding ranged between 40% and 55% except for Mossali et al. (2012) who carried out study in private hospital and reported 30% which may be due to different level of services provided. Al-Madani et al. (2010) suggested that Saudi woman may need to improve breastfeeding confidence.

A New Zealand study investigated reasons which made mothers feel that they did not have enough milk (Beasley et al., 1998). The study reported that there were two types of milk insufficiency; the first is real and the second is perceived insufficient milk syndrome. Three main reasons were reported by mothers as markers of milk insufficiency, including unsettled babies, breast feels soft, small, and empty, and uncertainty about milk supply and the need for reassurance from health professionals. The researchers found that the perceived insufficient milk may turn to real insufficient milk once mothers responded and introduced formula, which will reduce breastfeeding frequency and consequently decrease the breast milk stimulation and production (Beasley et al., 1998).

2.3.4. Medical factors

The medical factors associated with reduced breastfeeding as reported by Li et al. (2008) included new pregnancy, sick baby, and mother sick or using medicine. Two medical factors were identified in Saudi studies as having an influence on the decision whether to shift from exclusive breastfeeding or to stop breastfeeding. Medical factors as a reason for shifting from exclusive breastfeeding included: baby became sick (3%) (Al-Jassir et al., 2004), mother's sickness (4%) (Al-Jassir et al., 2004), mother became pregnant or wanted to

become pregnant (5- 13%) (Al-Jassir et al., 2003; Al-Jassir et al., 2004; Al-Madani et al., 2010), and mother taking medicine (5%) (Al-Jassir et al., 2004; Al-Madani et al., 2010). Medical factors as reason for stopping breastfeeding included baby sickness (8- 38%) (Mouzan et al., 2009; Al-Welaie et al., 2010), mother's sickness (8- 22%) (Al-Kordy et al., 1992; Al-; Mouzan et al., 2009), mother became pregnant or wanted to become pregnant (Mouzan et al., 2009), using contraceptive pills (32%) (Al-Shehri et al., 1995; Shawky & Abalkhail, 2003; Al-Welaie et al., 2010). Professional advice to stop breastfeeding for medical reasons was reported as a very important reason a mother will stop breastfeeding by 61% in study by Al-Welaie et al.'s (2010). Research cited above implied that the professional advice is one of the most important factors women are taking into account regarding their breastfeeding method.

Although the Saudi government supports breast-feeding, most governmental hospitals in Saudi Arabia are delaying the early initiation of breast-feeding until the paediatrician proves that the mother can handle and breast-feed her baby. And before that, they give babies glucose or formula (Al-Madani et al., 2010).

Furthermore, hospitals in Saudi Arabia still do not use rooming-in which is important to encourage women to breastfeed and consequently increase milk production as mentioned in Buxton et al. (1991) who found that women who did not room-in with their infants were 3 times more likely to stop breast-feeding. Using formula or bottle in the first few days' postpartum increases the likelihood of breast-feeding failure (UNICEF, n.d.).

2.3.5. Self-weaning factors

Self-weaning factors leading to reduced breastfeeding included: baby beginning to bite, baby losing interest in breastfeeding, and baby being old enough (Li et al., 2008). The infant's self-weaning factors mentioned in the Saudi studies include baby does not want breast milk (9- 15.5%) (Al-Ayed & Qureshi, 1998; Al-Jassir et al., 2003; Al-Madani et al., 2010), and baby is old enough and breast milk is no longer important (Al-Jassir et al., 2003). Few studies asked or reported about the self-infant weaning factors. This is could be because researchers did not focus on it, or because it rarely happens in Saudi Arabia.

2.3.6. Life-style factors

The life-style factors identified by Li et al. (2008) as reasons to reduce breastfeeding include: do not like breastfeeding, weight loss diet, back to the usual diet, smoking, and body figures. Life-style factors as a reason for shifting from exclusive breastfeeding as mentioned by Saudi mothers included: going back to work (5%) (Al-Madani et al., 2010; Al-Jassir et al., 2003), and being busy (10%) (Al-Madani et al., 2010). Life-style factors as a reason for stopping breastfeeding include: working (12.7%) (Al-Ayed & Qureshi, 1998; Fida & Al-Aama, 2003), and other factors such as did not like breastfeeding (Al-Welaie et al., 2010), going on a weight loss diet (Al-Welaie et al., 2010, back to the usual diet (Al-Welaie et al., 2010), and mother wanted her body back to herself (Al-Welaie et al., 2010).

2.3.7. Social factors

The effect of social factors as reported in the Saudi studies included: the lack of family or professional support, husband did not want mother to breastfeed (Al-Welaie et al., 2010), grandmother did not want the mother to breastfeed (Al-Welaie et al., 2010), pressure from older family members (Batterjee, 2009), influence of advertisements (Al-Jassir et al., 2003), availability and easy access to infant formula during hospitalisation (Mosalli et al,.2012), advice to use formula from other women (Al-Jassir et al., 2003), or family or friends (Fida & Al-Aama, 2003). Sociocultural factors such as being a conservative society makes home visits a limited choice for supporting Saudi women (Baldo et al., 2000).

A qualitative study by Batterjee. (2009) found social factors that make breastfeeding difficult are an unsupportive society, mother's visitors and guests while in hospital, and pressure from older family members. Support from husbands and female friends were found to be a social factor that encouraged mothers to breastfeed. Social factors which were found to influence a mother's decision to breastfeed and to choose alternatives for breastfeeding included trying to reduce the pressure from older family members. Batterjee concluded that, currently, the social environment supports mixed-feeding, which influences mother's intentions and attitudes towards breastfeeding.

However, Fida and Al-Aama (2003) reported inconsistent results and found that 67.2% of mothers were getting encouragement about breastfeeding from female family members, husbands, or health professional staff. However, these

authors also reported that advice from family or friends was a reason for shifting to formula feeding. It appears that social factors are important to mothers and have a great impact on breastfeeding.

A study conducted with first time mothers in Ireland reported that social support, especially for first time mothers, was required and was associated with increased self-efficacy and consequently extended breastfeeding duration (Leahy-Warren et al., 2012).

The effect of social support on women's intention and duration of breastfeeding was studied via qualitative focus groups (primiparous in first trimester) and in-depth interviews (multiparous in third trimester) in Spain by Barona-Vilar et al. (2009). It was reported that women's perceptions regarding formal and informal social support linked to their socio-cultural status and age. It was found that women from higher socio-economic status took into consideration their husband/partner's opinion and valued professional support more; whereas, women from low social-economic status took into account their friends and family member's opinions, and valued their mother's opinion more. This is may be applied among Saudi women but no study investigated this yet.

2.4. Factors associated with breastfeeding patterns in Saudi Arabia

2.4.1. Age and parity

Studies in Saudi Arabia about the association between breastfeeding and parity and age of mothers are inconclusive. Shawky and Abalkhail (2003) found that there was no significant relationship between either mother's age or parity, and

breastfeeding. However, Al-Kordy et al. (1992), Al-Shehri et al. (1995), and Al-Madani et al. (2010) found that younger mothers aged less than 30 years were less likely to breastfeed, and more likely to introduce formula (Al-Kordy et al., 1992).

Mothers who were younger at marriage were found to be more likely to breastfeed (Al-Othman et al., 2002). Additionally, Al-Yousif et al. (2011) found that there is positive association between family size and breastfeeding practice.

2.4.2. Delivery mode and contraceptive pills

The delivery mode (vaginal or caesarean) as well as using contraceptive pills was also associated with stopping breastfeeding and introducing formula (Shawky & Abalkhail, 2003). Mothers who delivered by caesarean (OR= 1.9) and those who were consuming oral contraceptives (OR= 1.5) were at higher risk of stopping breastfeeding and introducing formula to their infants (Shawky & Abalkhail, 2003; El-Gilany, 2010). A recent systematic review suggested that early breastfeeding was significantly lower among mothers who delivered via caesarean (Prior et al., 2012).

2.4.3. Baby birth weight

Birth weight and gestational age were found to be significantly related to feeding patterns. A cross-sectional study conducted in Al-Hassa (eastern region) found that normal weight and full term infants were more likely to exclusively breastfed (El-Gilany et al., 2011).

2.4.4. Marital status

Marital status was also found to be significantly associated with breastfeeding patterns. A cross-sectional nationwide study found that married and widow mothers were more likely to use exclusive formula feeding, whereas divorced mothers were more likely to use mixed-feeding (Mouzan et al., 2009).

2.4.5. Mother's occupation

The Ministry of Civil Service (MCS) in Saudi Arabia stipulated maternity leave for 60 days with full payment. Also, MCS offers another form of leave, called "new-born care leave" that can be granted to working women for up to three years with quarter of the payment, however only women who are working in government sectors get the benefit of the new-born care leave (Ministry of Civil Services, 2011).

Most studies have reported that working mothers likely to breastfeed compared with at-home mothers (Al-Othman et al., 2002; Al-Jassir et al., 2003; Fida & Al-Aama, 2003; Shawky & Abalkhail, 2003; Al-Jassir et al., 2004; Al-Jassir et al., 2006; Murshid, 2006; Mouzan et al., 2009; El-Gilany, 2010; Al-Madani et al., 2010). Only one study reported no association between mother's occupation and breastfeeding duration, but this study was conducted in rural areas 20 years ago, where most women did not work and had relatively low education at that time (Al-Kordy et al., 1992).

2.4.6. Parent's education

The relationship between education level and mother's initiation and duration of breastfeeding was mentioned in many international studies, such as the literature review by Callen and Pinelli (2004) and primary research studies by Bertini et al., (2003), Ummarino et al., (2003), Di Napoli et al., (2006), and Li et al., (2008). Studies carried out in western countries reported that education level is positively associated with breastfeeding initiation and duration (Callen & Pinelli, 2004; Li et al., 2008).

On the other hand, in Saudi Arabia most studies report that educated women are less likely to breastfeed their infants than their illiterate or less educated peers (Al-Kordy et al., 1992; Al-Mazrou et al., 1994; Al-Shehri et al., 1995; Al-Jassir et al., 2003; Al-Jassir et al., 2006; Al-Madani et al., 2010; El- Gilany, 2010). This is attributed to the adoption of modern technology or new life-style (Al-Shehri et al., 1995), the change in food habits, and sociocultural changes, such as Saudi Arabia becoming an industrialised country (Al-Madani et al., 2010). Al-Ayed and Qureshi (1998) and Fida and Al-Aama (2003) reported that there was no association between education level and breastfeeding practice, whereas Al-Othman et al., (2002) reported that educated women are more likely to breastfeed.

2.5. Sources of breastfeeding information

During the 1990s Saudi women mainly obtained breastfeeding information from their relatives (Al-Kordy et al., 1992; Al-Shehri et al., 1995). More recently,

women appear to mostly get information on breastfeeding from health professionals (44.9%) compared with relatives (26%) or media (17%) (Al-Welaie et al., 2010).

A review by Al-Jassir et al. (2006), found that 44.9% of women nationwide received postpartum breastfeeding education from medical personnel. It was also reported that Saudi mothers receive less breastfeeding education than non-Saudi mothers (Al-Jassir et al., 2006).

A regional study conducted in the western region by Fida and Al-Aama (2003) reported that 65.6% of women in the study received information about breastfeeding, but most information was provided by relatives. However, a study conducted in the central region by Al-Welaie et al. (2010) stated that 54.2% of women received postpartum breastfeeding education while in hospital and 78% of women in the study tried to find information about breastfeeding by themselves, which implies that Saudi women are interested in knowing about breastfeeding. Therefore, breastfeeding information provided by health professionals as part of prenatal care may be well accepted. Differences between studies could be due to the differences in regions, hospital polices, and in time the studies were conducted in, as study by Fida and Al-Aama (2003) was conducted between October 2001 and September 2002, whereas Al-Welaie et al. (2010) study was conducted in July 2009. Recently, health professionals are more aware of the importance of breastfeeding and provide more encouragement to women.

Habib et al. (2011) conducted a study to assess services provided by antenatal care in primary health care centres in Medina (western region). The researchers designed their data collection form by using the WHO antenatal care, and checked the services provided in different primary care centres. Researchers found that the best performed tasks were in health promotion domain: nutritional advice (63.7%) and counselling on new born care including breastfeeding education (39.8%). This indicates that there is an effort is being made to promote breastfeeding in the primary health care; however it looks that breastfeeding education in the primary health care centers is not convincing enough to encourage mothers to breast-feed exclusively (Al-Amoud., 2003). Al-Amoud. (2003) attributed this failure to many factors, such as, lack of sufficient breastfeeding knowledge and skills of the health staff. Moreover, it was noticed that many of the pamphlets on breastfeeding were created by the artificial milk companies, who list and advertise their different products on these pamphlets. Al-Amoud. (2003) suggests that these factors mentioned have played a role in weakening the effect of health education on breastfeeding. Free centers for breastfeeding education and support may help mothers to exclusive breastfeed for six months and to postpone early cessation, for example, the Plunket in New Zealand provides parents with free help and support for their children's development, health and well-being. Plunket provides mothers with clinic visits, home visits, mobile calls and a 24/7 Plunket help-line (Plunket, n.d.).

2.6. Beliefs and attitudes about breastfeeding

Recent surveys conducted by Al-Madani et al. (2010), Al-Welaie et al. (2010), Amin et al. (2011), and Mosalli et al. (2012) in different regions of Saudi Arabia reported that mothers have some misperceptions about breastfeeding. Al-Madani et al. (2010), and Al-Welaie et al. (2010) investigated womens' breastfeeding attitudes in more detail and found contradictory results. For example, Al-Madani et al. (2010) found that 82% of women in eastern regions agreed or strongly agreed that formula is as healthy for infants as breast milk. On the other hand, Al-Welaie et al. (2010) found that 86% of women in central region strongly disagreed or disagreed that formula is as good as breast milk. Although women in the Al-Welaie et al. (2010) study believed that formula was not as nutritionally valuable as breast milk, most mothers in the study planned to use or used mixed-feeding to feed their infants (Al-Welaie et al. 2010).

The difference between results from these two studies could be due to different question structure. In study by Al-Madani et al. (2010) women apparently contradict themselves; 82% agreed that formula is as healthy for infants as breast milk and at the same time 95% agreed that breast-fed babies are healthier than formula-fed babies. It seemed that there was some confusion or that those mothers were holding two beliefs at the same time. The difference in attitudes also could be due to differences in the women's educational level as the Al-Madani et al. (2010) survey included 38% of women who indicated their educational level was under high school, while the Al-Welaie et al. (2010)

survey, which has more positive attitudes to breastfeeding, involved only 16% of women whose education was under high school.

Further negative attitudes about breastfeeding found in Saudi surveys are: 1) 47% strongly agree or agree that formula is best for infant when mother returns to work; 2) 88% strongly agree or agree that formula feeding is more convenient than breastfeeding; 3) 83% agree or strongly agree that breastfed babies are more likely to be overfed than formula feed babies (Al-Madani et al., 2010); 4) 25% of women believed breastfeeding negatively affects mothers' breast shape (Mosalli et al., 2012); 5) 41.7% of women believed that breastfeeding causes obesity; 6) 47% of women believe that breastfeeding causes "spoils"; and 7) 32.3% of women reported that fluids should be given to infants by 3 months of age (Amin et al., 2011). Mosalli et al.'s (2012) study aimed to help understand problems associated with breastfeeding, so they could be addressed after initiating the BFHI. The study found that one third of women lacked breastfeeding knowledge, women reported that formula feeding was easier that breastfeeding, women were not sure about producing sufficient milk supply for their infants, and women believed that breastfeeding would change breast shape in unpleasant way.

However, these surveys also showed positive attitudes about breastfeeding. Al-Madani et al. (2010) and Al-Welaie et al. (2010) found that most of the women (75%- 90%) agreed and strongly agreed that: 1) breastfeeding increases the bonding between mothers and their infants; 2) mothers who do not breastfeed miss one of the great joys of motherhood; 3) breastfed infants are healthier than

formula fed infants; 4) two years of breastfeeding is the ideal for infants; 5) breastfeed infants are less likely to get ear infections; and 6) breastfeeding infants are less likely to get respiratory illness. In addition, a review study reported that 88.6% of women believed that the colostrum is good for infants (Al-Jassir et al., 2006).

Bella (1997, 1998) conducted a survey to find out if Saudi female college students were prepared for successful breastfeeding and he found that Saudi college students had some misperceptions regarding facts about breastfeeding. For example students reported that; 1) a mother should stop breastfeeding if babies get diarrhoea; 2) a mother should stop breastfeeding immediately if she gets pregnant; 3) a mother's ability to breastfeed is associated with the breast size; 4) breastfeeding negatively influences a mother's figure; 5) unsure of the duration of each feeding; 6) unsure of frequency of feeding; 7) unsure of the best time for first feed; 8) unsure of colostrum meaning; and 9) agreed that breast milk lacks of sufficient iron. Al-Jassir et al. (2003) reported that mother's beliefs regarding the necessity of stopping breastfeeding if pregnant was due to advice from health professionals who said that breast milk is harmful when mothers are pregnant.

Overall, this implies that mothers maybe knew that breast milk is better, but they perhaps did not know the risks associated with using formula on infant health. A study by Li, et al. (2007) investigated the differences between women's answers to two different questions: "Infant formula is as good as breast milk," and "feeding a baby formula instead of breast milk increases the chances the

baby will get sick". It was concluded that breastfeeding education should include both benefits of breastfeeding and risks of formula at the same time. A review by Stuebe (2009) reported that participants responded differently to questions about the benefits associated with breastfeeding and the risks associated with formula.

2.7. Baby Friendly Hospital Initiative (BFHI)

The Baby Friendly Hospital Initiative (BFHI) was launched by the WHO, and it consists of ten steps which lead to successful breastfeeding. The initiative was found to be effective in the establishment of breastfeeding; therefore, many hospitals worldwide have adopted the BFHI (WHO, 2009). In Iowa hospital it was reported that the implementation of more steps is associated with higher breastfeeding rates at discharge from hospitals (Lillehoj & Dobson, 2012). Indeed, the implementation of the BFHI showed its effectiveness in promoting and encouraging breastfeeding initiation, duration, and exclusivity regardless the differences in the implementation of the ten steps of the BFHI.

In Brazil, an observational study by Braun et al. (2003) reported that the BFHI has increased breastfeeding duration and exclusivity compared with non-BFHI with two months median duration of exclusive breastfeeding among BFHI (58%) participants compared to one month median duration of exclusive breastfeeding among non-BFHI (30%) participants. A recent observational Brazilian study reported that babies born in BFHI hospital were 1.36 times more likely to be breastfeed during the first hour postpartum and 1.47 times more likely to be exclusively breastfeed at the first day after discharge from hospital. In addition,

the median duration of exclusive breastfeeding was significantly different between babies born in BFHI hospital at 60.2 days compared with 48.1 days among babies born in non-BFHI hospital (Venancio et al., 2012).

In Europe, an observational study conducted in 33 maternity units in Scotland reported that infants born in BFHI hospital were 28% more likely to be exclusively breastfeed at one week postpartum (Broad foot et al., 2007). The mean breastfeeding rate increased by 11.4% in BFHI hospital compared with 8% in non-BFHI hospital between 1995 and 2002. In Italy, a controlled non-randomised study collected data in three phases (at discharge, three, and six months postpartum) in different regions of Italy (Cattaneo, & Buzzetti, 2001). Cattaneo and Buzzetti (2001) reported that the percentage of women who exclusively breastfeed at discharge from hospital increased after the BFHI from 41% to 77% in group 1 (southern Italy), and from 23% to 73% in group 2 (central and northern Italy). Full breastfeeding at three months was increased from 37% to 50% in group 1 and 40% to 59% in group 2, and at 6 months was increased from 43% to 62% in group 1 and 41% to 64% in group 2.

Lastly, an observational study carried out in the United States (US) by recording feeding outcomes of infants born in hospital at three different years (1995, 1998, and 1999) after the implementation of the BFHI (Philipp et al., 2001) reported that the implementation of BFHI has increased breastfeeding initiation rate, and its exclusivity among the American population. It was found that breastfeeding initiation rates increased from 58% (1995) to 77.5% (1998) to 86.5% (1999) (Philipp et al., 2001). Furthermore, exclusive breastfeeding rates

increased from 5.5% (1995) to 28.5% (1998) to 33.5% (1999) (Philipp et al., 2001). A cross-sectional study with focused interviews in 29 BFHI hospitals in the US compared breastfeeding records from the US national data with records from the 29 BFHI hospitals. Twenty-eight BFHI hospitals out of 29 reported about the breastfeeding initiation rate with mean of 83.8% in 2001 compared with a US national data (69.5%) in 2011 (Merewood et al., 2005). In addition, the mean rate of exclusive breastfeeding rate during postpartum hospitalization was 78.4% in BFHI hospital compared with a national mean of 46.3% (Merewood et al., 2005).

In Saudi Arabia, no study has yet been published about the effectiveness of the BFHI on breastfeeding rates. A proposal was written to compare the breastfeeding practice in subjects who delivered in BFHI hospital with others who delivered in non-BFHI hospitals in Riyadh, capital of Saudi Arabia (Mosher et al., 2011). A recent cross-sectional study by Mosalli et al. (2012) investigated breastfeeding perceptions and attitudes in the International Medical Centre (IMC), Jeddah, Saudi Arabia prior to the implementation to the BFHI. Mosalli et al. (2012) found that the availability of free formula and the easy access for using it while in hospital after birth was reported as a reason for early introduction of formula. This may give the impression that there are no risks associated with formula as long as the hospital provided it. Mosalli et al. (2012) concluded that the findings of her study will provide guidance to correct women's misperceptions and negative attitudes mentioned above regarding

breastfeeding reported in this study, and limit the access to the formula milk during postpartum hospitalisation after implementing the BFHI.

2.8. The Theory of Planned Behaviour (TPB)

The Theory of Planned Behaviour (TPB) was developed by Ajzen, (1985) an extension of the theory of reasoned action by Ajzen & Fishbein, (1980). The TPB stated that the intention to do an action can be predicted accurately by attitudes toward the specific action, subjective norms, and perceived behavioural control, and that intentions predict the actual behaviour (Ajzen, 1991). Ajzen, (1991) defined the components of the TPB as following:

- Intentions defined as “intention to perform a given behaviour”.
- Attitudes defined as “attitudes toward the behaviour”.
- Subjective norm defined as “perceived social pressure to perform or not perform the behaviour”.
- Perceived behavioural control defined as “the perceived ease or difficulty of performing the behaviour and it assumed to reflect past experience as well as anticipated impediment and obstacles”.

The TPB was found to be an accurate and valid conceptual framework to predict the human health related behaviour (Ajzen, 1991; Armitage & Conner, 2001). The TPB has been used as a conceptual framework and found to be valid in predicting mother’s behaviour toward breastfeeding (Avery et al., 1998), as well as initiation, duration, and continuation (Giles et al., 2007). Bai et al. (2010) in prospective study in the US found that the attitudes and subjective

norms are better predictors of intentions than the perceived behavioural control. However, there is a significant positive correlation between intentions and actual exclusive breastfeeding duration.

In Scotland 203 women were interviewed during postnatal hospitalisation and posted after 6 weeks postpartum. There was significant relationship between women's feeding intention and behaviour ($p < 0.001$). Furthermore, the model was found to be a significant predictor of feeding practice ($p < 0.001$). It was found that subjective norms have a significant role in determining breastfeeding initiation and continuation. The views of the women's partner, parents, and midwife were fundamental for them. Discontinuation of breastfeeding was found to be associated with a social pressure that favoured bottle-feeding (Swanson, & Power, 2005).

However study by Wambach. (1997) used casual modelling to test the TPB ability to predict breastfeeding outcomes. One hundred thirty-five mothers in the last trimester were recruited using a convenience sampling procedure. Prenatal measurements were breastfeeding attitudes, intentions, subjective norms, and perceived behavioural control. The postnatal measurements were breastfeeding duration between four and six weeks postpartum, and breastfeeding problems. The results of the study found that attitudes and perceived behaviours were positively associated with breastfeeding duration. However, breastfeeding intentions were a weak predictor of breastfeeding duration.

Indeed, the TPB it has been used as a conceptual framework in many studies investigated about breastfeeding, and it was found valid and reliable.

2.9. Summary

The Baby Friendly Hospital Initiative (BFHI) has been found to be effective in increasing breastfeeding duration and exclusivity worldwide, however, in Saudi Arabia no published study found about the effectiveness of the BFHI. There is a dramatic reduction in breastfeeding rates after such high initiation rates among Saudi women. The early introduction of formula makes the mixed-feeding the most popular feeding method used among the Saudi population. The most frequent reason reported for the early introduction of formula milk or cessation of breastfeeding was insufficient milk followed by medical and life-style factors. Therefore, increasing Saudi women's confidence about breastfeeding, educating women about importance of exclusivity of breastfeeding may help. Younger, employed, and higher-educated women were found to be less likely to breastfeed therefore a greater effort probably is required with those women.

The principle aim of this study is to investigate factors influences breastfeeding practice in the first month after birth.

The Theory of Planned Behaviour (TPB) is used as a conceptual framework to design this study. The TPB suggests that intention predicts behaviour, and that intention is predicted by attitudes, subjective norms, and perceived behavioural control (Ajzen, 1991). In this study concepts of the TPB were addressed as follows:

- Intentions
- Attitudes
- Subjective norms
- Perceived behavioural control

CHAPTER 3**: METHODS**

The study design was a longitudinal study of infant feeding practice with data collection at birth and one month postpartum from one non-registered BFHI private hospital and one non-BFHI private hospital in Jeddah, Kingdom of Saudi Arabia (KSA). There are no public BFHI hospitals in Jeddah, but two private hospitals have implemented BFHI polices but not registered as BFHI. These non-registered BFHI hospitals are Soliman Fakeeh (SF) hospital and the International Medical Centre (IMC) but only SF allowed investigator to recruit subjects at their hospital. The SF hospital has adopted 6 steps of the 10 steps which are: train all health workers, inform all pregnant about the benefits of breastfeeding, show mothers how to breastfeed, only give infant breast milk, practice rooming-in, and give no artificial teats or pacifiers. In this thesis the SF hospital will be referred to as BFHI and SGH as non-BFHI.

3.1. Sample selection

Women who gave birth at two private hospitals, (SF) as a baby friendly hospital, and the Saudi Germany hospital (SGH) as a non-baby friendly hospital in Jeddah, KSA between 25 September, 2012 and 20 October, 2012 were asked to participate in the study. Women who met the following criteria were excluded:

- Women who gave birth to multiples
- Women who did not plan to breastfeed

- Women who experience premature birth (before 37 weeks)
- Women who delivered to baby with congenital abnormalities
- Women who did not speak either Arabic or English

The supervisor of the breastfeeding education unit at the BFHI hospital did an orientation for the investigator to present her research to the nursing staff and asked them to assist and help her access the patients in the postnatal wards, who are distributed across two floors. Only one floor of postnatal ward was available and so women were recruited from it (included 2/3 of room in postnatal ward).

At the non-BFHI hospital there was no breastfeeding educator or postnatal ward. Women who gave birth were distributed across all floors of the hospital. The head nurse of each floor helped the investigator get access to room numbers of postnatal patients. Subjects were recruited from both hospitals daily by the same investigator and all patients in the non-BFHI hospital were asked to participate. However, in the BFHI hospital the number of deliveries was high and the investigator was not able to invite all patients and used systematic subject selection. Therefore, the first 10 or 12 patients were interviewed daily in the BFHI hospital.

3.2. Instrument

Two semi-quantitative questionnaires were used (see appendixes 2- 5), one at baseline and another at one month postpartum. Both English and Arabic questionnaires were used depending on the women's spoken language.

The baseline questionnaire had eight topics:

- Questions on birth and initial feeding.
- Questions on breastfeeding support and discouragement.
- Questions on current feeding practice and future feeding plans.
- Questions on breastfeeding knowledge and sources of breastfeeding information.
- Questions from the Breastfeeding Self-Efficacy Scale Short Form (BSES-SF) (Dennis, 2003).
- Attitudes Questions from the Iowa Infant Feeding Attitude Scale (IIFAS) created by De la Mora et al. (1999).
- Questions about other children and previous breastfeeding experience.
- Demographic characteristics.

The one month postpartum questionnaire had three sections:

- Current feeding method and future plans.
- Support and discouragements with breastfeeding.
- Questions from the Breastfeeding Self-Efficacy Scale Short Form (BSES-SF) (Dennis, 2003).

Definitions used for breastfeeding are:

- **Exclusive breastfeeding:** infants are feed with only breast milk, not given any water, formula, and any other food or drinks for the first 6 months of life, but are allowed to receive Oral Rehydration Salts (ORS), drops and syrups, vitamins, minerals and medicine.
- **Full breastfeeding:** Infants are feed with only breast milk, with a minimal amount of water or prescribed medicine, but have not been given any other food or drinks within the past 24 hours.
- **Predominant breastfeeding:** Infants are feed with breast milk (including milk expressed or from a wet nurse) as the predominant source of nourishment, and also receive liquids (water, and water-based drinks, fruit, juice, oral rehydration solution), ritual fluids, and drops or syrups (vitamins, minerals, medicines), but are not given any food or formula.
- **Mixed-feeding:** Infants are feed with some breast milk, and have had some infant formula or other solids within the past 24 hours.
- **Exclusive formula feeding:** Infants are not receiving any breast milk and have been fed with infant formula or other alternatives such as solid food within the past 24 hours.

3.2.1. Attitudes scale

The Iowa Infant Feeding Attitude Scale (IIFAS) was developed by De la Mora et al. (1999) to be a valid and reliable assessment of mothers' attitudes towards infant feeding and has been used in many studies conducted globally (Tappin et al., 2006; Wallis et al., 2008; Ho, & McGrath, 2011). The original IIFAS

questionnaire created by De La Mora (1999) consisted of 17 questions that addressed areas such as nutrition, cost, sexuality, infant bonding and convenience.

The IIFAS was translated, tested, used, and found to be a valid and reliable method to be used among the Saudi mothers to predict mother's intentions regarding feeding infants by Al-Madani et al. (2010). Al-Madani et al. (2010) used 16 questions from the original 17 questions scale developed by De la Mora et al. (1999) excluding one question that asked about alcohol consumption, which is forbidden in Saudi community because it is an Islamic country. Al-Madani et al. (2010) added more five questions to the original 16 questions resulting in 21 questions. In the current study the IIFAS questions, Arabic version was used.

In this study, ten questions of the IIFAS (Arabic form) were not used; 2) Formula-feeding is more convenient than breast-feeding, this question is asked in two ways at the IIFAS and only the wording that supported breastfeeding was used in this study; 3) Breast-feeding increases mother-infant bonding; 4) Breast milk is lacking in iron; 7) Mothers who formula-feed miss one of the great joys of motherhood; 13) Breast milk is more easily digested than formula, these questions were not used to avoid repetition because it's about mothers breastfeeding knowledge and an open ended question about their knowledge was included in this study; 5) Formula-fed babies are more likely to be overfed than are breast-fed babies; 10) Breast-fed babies are more likely to be overfed than formula-fed babies, these two questions were not used because are not

relevant to this study, 12) Breast milk is the ideal food for babies; 16) Breast milk is less expensive than formula; 17) A mother who drinks alcohol once a week should not breast-feed her baby, this question was not used because in Saudi Arabia alcohol is forbidden. Only seven questions from the scale were used; 14) Formula is as healthy for an infant as breast milk; 9) Breastfed babies are healthier than formula fed babies; 1) The benefits of breast milk last only as long as the baby is breast fed; 8) Women should not breastfeed in public places such as restaurants; 6) Formula feeding is the better choice if a mother plans to work outside the home; and 11) Father feels left out if a mother breastfeeds; 15) breastfeeding is more convenient than formula feeding. Two additional questions were added based on misperceptions found in studies done among Saudi university students (Bella, 1997 & 1998): 8) a heavier baby is a healthier one; and 9) breastfeeding affects a women figure negatively. Furthermore, a recent Saudi study reported that 25% of women delivered in the International Medical Centre (IMC) in Jeddah, Saudi Arabia believed that breastfeeding affects breast shape negatively (Mosalli et al., 2012).

Overall, the attitudes scale in this study included 9 questions; a response of 'agree' is positive for some and for others negative. Scores ranged between 1 (strongly disagree) and 5 (strongly agree).

3.2.2. Breastfeeding Self-Efficacy Scale (BSES)

The breastfeeding self-efficacy scale (BSES) was created in 1999 by Cindy-Lee Dennis and it consisted of 33 questions. Then, in 2003 the Breastfeeding Self Efficacy Scale was shortened to form the Breastfeeding Self-Efficacy Scale

Short Form (BSES-SF) by Dennis in 2006 and involved 14 questions. Each question uses a five point Likert scale in which scores range from one (not at all confident) to five (very confident). The scale was designed to measure women's confidence in her ability to breastfeed her baby. The BSES has been used in other countries and has been translated to different languages including Chinese (Dai et al., 2003), Japanese (Otsuka et al., 2008), Spanish (Molina et al., 2003) and Turkish (Tokat et al, 2010) and has proven its validity to predict breastfeeding outcomes. However, there is no published evidence of its use among Saudi mothers. Permission was obtained from BSES designer Dr Dennis via e-mail, and agreement was given upon semantic equivalence and cultural appropriateness when translating the scale.

3.2.2.1. Translation of BSES

The BSES-SF was translated into Arabic language by using a back translation method. Back translation is a recommended method to ensure semantic equivalence, which means that the meaning of each question remains the same after translation to the targeted language (Arabic) (Brislin, 1970). The back translation was done as follows: first, BSES-SF was translated into Arabic by three bilingual people (the investigator and two other people with expertise in the field). Second, the Arabic version was back translated to English by bilingual non-experts in the field who did not have any idea of the original English version of the scale.

3.2.2.2. Pretesting of BSES

The Arabic version of the BSES was pre-tested among two Arabic speaking pregnant women. All BSES statements were clear to the women except for two questions 'I can always continue to breastfeed my baby for every feeding' and 'I can always manage to keep up with my baby's breastfeeding demands' (يمكنني استطيع دائما التعامل مع متطلبات طفلي من الرضاعة الطبيعية,دائماً أن استمر في إرضاع طفلي في كل رضعة). The two questions were unclear because they were very brief due to the back translation, and therefore needed more explanation to show the meaning of it. Therefore during later interviews, each woman was provided with an additional verbal explanation.

3.2.3. Pretesting

The English and Arabic versions of the entire questionnaire were both pre-tested among three English-speaking women and four Arabic-speaking women who had children. The questionnaire took between 15 and 20 minutes to be finished. All questions were clear for them and no difficulty was found except for the 2 statements from the BSES as mentioned in section 3.2.2.2.

3.3. Ethical consideration

Low risk ethical notification was filed with the Massey University Human Ethics Committee and ethical approval was received from King Abdul-Aziz University Human Ethics Committee, and Suliman Fakeeh Hospital Research Ethics Committee. Permission to interview patients was obtained from authorised hospital staff at each hospital.

Each woman was given an information sheet explaining about the study (see appendix 6 and 7). If she agreed to participate, she signed a consent form (see appendix 8 and 9). At end of the interview, the participants were asked by the investigator if they were willing to be interviewed via a phone call at one month.

Each participant was given a code to ensure confidentiality of their names. Subjects' codes were used in the questionnaire instead of the subjects' names. Matched subject's names with their codes were kept in a secure locked drawer and only the investigator and supervisor had access to this information.

3.4. Data collection

The baseline interview was a face-to-face interview which took place at the hospitals either at the same day or the day after delivery for vaginal delivery and after two or three days for caesarean section delivery. All subjects were interviewed by the investigator, and the interview took between 15-20 minutes. After completing the interview, each woman was thanked for her participation and given a breastfeeding scarf as a gift to appreciate her for cooperation. Thereafter, every woman was asked if she was willing to be contacted after one month for a follow-up interview and a preferred time of the day to be called was arranged.

The one month postpartum interview was conducted via phone calls by the investigator and a trained interviewer and took approximately 10 minutes to be completed. Phone calls were made at the time the women suggested when they were asked about the follow-up questionnaire. Calls were repeated at

different times on the same day or on different days if women did not answer the phone. Calls were also repeated if women picked up the phone and were busy and asked to be contacted at different time. At the beginning of each call, a friendly chat between the investigator and mothers was done to establish rapport, then the interview questions were asked regarding breastfeeding status and the breastfeeding method she had been using since discharge from hospital until the recent moment.

3.5. Data management

All questions were coded and entered into the Statistical Package for Social Science (SPSS) dataset. The attitudes scale included both negative and positive questions, so a reverse code ranging from one to five points was used when required. The BSES was all positive questions ranging between one and five points.

3.5.1. Coding

Close ended questions (1, 2, 3, 3a1, 4, 5, 6, 7, 8, 9, 10, 17, 18, 20, 21, 22, 27, 28, 30, 31, 32) were either coded by 0= no and 1= yes if it is close ended question that has two answers (yes/ no) or coded by giving sequence of number 1, 2, 3, if has more than two answers.

Open ended questions included:

- When infant first received breast milk?
- Why infant was introduced to formula?
- What kind of problems the mother had initiating breastfeeding?

- How women received breastfeeding support?
- When women were planning to introduce solids for their infants?
- Why women plan to stop breastfeeding before 2 years?
- How mother knows when to feed her infant?
- What she can do to ensure that her infant is getting enough milk?
- What the important factors mothers put in mind when choosing feeding method?
- What breastfeeding information mother received during pregnancy?

Coding of answers of open ended questions was done by looking at all the women's answers first, and with reference to the literature.

The time when the baby first received breast milk was coded after looking at all the times reported by mothers, which were then were categorised as follows: less than one hour postpartum, after one hour postpartum, after two hours postpartum, after three hours postpartum, after four hours postpartum, after 5-10 hours postpartum, after 11-20 hours postpartum, after one day, and after two days postpartum, and did not breastfeed her baby yet at the time of the interview.

Women's reasons for introducing formula were categorised as: maternal fatigue, not enough milk, no milk, mother wanted to use formula, maternal sickness, baby cannot latch on, baby sickness, baby refuses mother's breast, baby was not satisfied with only breastfeeding, and hospital policy to give formula.

Problems associated with initiating breastfeeding were categorised as: nutritional, sucking, latching on, positioning, baby refusing mother breast, maternal fatigue, and medical problems. The grouping was done similarly to the study done by Li et al. (2008) among Australian women, except that Li combined sucking and latching on problems in one group. Also maternal fatigue was a response found in this study, but not by Li et al. (2008).

Responses to the types of support received were categorised as: emotional, practical, or information as suggested by Noel-Weiss et al. (2006).

Reasons for planning to stop breastfeeding before two years were categorised similarly to the study conducted by Li et al. (2008) but with the addition of the 'previous experience' factor. Categories are: psychological, nutritional, medical, life-style, previous experience, and self-weaning reasons. For example, the nutritional factors included breastfeeding does not satisfy the baby, the baby refuses food if continuing to breastfeed longer than a year, and mothers not having enough milk supply.

Knowing when to feed her infant was categorised into: on demand feeding; scheduled feeding with frequency of every two hours, every three hours or every four hours; when baby cries; or when the mothers feel her breast full.

Ways to know that her infant was getting enough milk was categorised into: when baby stops crying, baby excretes between two and five times a day, baby is putting on weight, baby sleeps, baby burps, or baby leaves the breast.

The important factors behind a mother's decision about feeding methods were categorised as: baby health, mother health, life-style, breast milk factors, formula factors, breast milk supply factors, baby's behaviour, mother's behaviour, religious reasons, and bonding.

Data then was cleaned after being input into SPSS to ensure that it was correctly entered and no data was missing.

3.6. Data analysis

Data was analysed using SPSS version 20 with significance at *P* value ≤ 0.05. A *Chi*-square test was used to test the difference between expected and observed frequencies (Kaps & Lamberson, 2009). The Bonferroni test is a multiple-comparison correction that was originally developed by Holm 1979 (Cabin & Mitchell, 2000) and used when several dependent or independent statistical tests are being performed simultaneously to prevent false positives (Weisstein, 1999-2013). *Chi*-square test was not carried when the group included less than 5 women. In some cases, when applicable some data was combined to carry out the *Chi*-square test, such as nationality groups, to eliminate expected values less than five. So for example, the nine nationalities included in the study were grouped into three categorised groups: Saudi women, Egyptian women and Others (including all other nationalities which consisted of one or two people from each nationality). Feeding methods in some cases were combined and regrouped into three categories instead of four by combining exclusive and predominant breastfeeding together.

With continuous data, in some cases the score was categorised to be able to carry out *Chi*-square test; for example the sum of BSES score was grouped into three categories: women who got scores between; 1) 70 and 56 ; 2) 55- 42; and 3) 41- 28.

One-way ANOVA and a T-test were used to test continuous normally distributed variables such as attitudes and BSES. First, the sum of each scale was calculated. Then, data was tested to find if it was normally distributed by using SPSS normality plots. If the data was normal parametric tests were used.

Logistic regression was used to analyse the relationship between multiple independent variables and dichotomous dependent variables (feeding outcomes at 1 month postpartum) (Sweet & Grace-Martin, 2008). In this study logistic regression with CI 95% and significance at P value ≤ 0.05 was set. Stepwise regression follows an automatic selection of independent variables which can be done by forward selection, backward selection or bidirectional elimination. In this research, a forward Wald stepwise regression was used to find the best statistical model by starting with no variables in the model, and then adding each variable that improved the model the best, and repeated this process until none improves the model (Sweet & Grace-Martin, 2008).

CHAPTER 4**: RESULTS**

One hundred and seven women were approached and 102 women (52 from BFHI hospital and 50 from non-BFHI hospital) agreed to participate in the study and were interviewed for the baseline questionnaire. This is a 95.3% response rate, with three women from BFHI hospital and two from non-BFHI hospital refusing to participate in the study because either they felt tired or they did not "have time".

At the one month postpartum phone interview, 24.5% of the participants dropped out leaving 77 (36 from BFHI and 41 from non-BFHI) participants. The 25 participants who did not participate at the one month postpartum phone interview, dropped out for the following reasons: three participants had switched off their mobiles even when called at different times; nine participants did not answer phone calls even when contacted many times at different times of day; the husbands of nine participants did not allow the investigator to talk with their wives; and the wrong phone number was recorded for the remaining four.

4.1. Baseline sample description

The baseline data was collected during postnatal hospitalisation (normal delivery during first 24 hours and caesarean between 2 and 3 days post-delivery). Baseline sample consisted of 102 women who met the study criteria, including 52 women who gave birth in a BFHI hospital and 50 who gave birth in a non-BFHI hospital (see table 4.1). The sample included 64 Saudi women and 38 non-Saudi women. The non-Saudi subjects consisted of nine different

nationalities: Egyptians, Syrians, Jordanians, Palestinians, Yemenis, Moroccans, Somali, Tanzanian, and Sudanese. There was an association between participant's nationality group and type of hospital attended (p= 0.001). Saudi women counted for 73% of BFHI patients compared with 52% in the non-BFHI hospital. Furthermore, the majority (94%) of Egyptian women attended the non-BFHI hospital and only 1 attended the BFHI hospital.

Table 4.1: Subjects distribution in both hospitals by their nationalities

	BFHI N=52		Non-BFHI N=50		Total N=102	
	N	%	N	%	N	%
Saudi	38_a	73.1	26_b	52.0	64	62.7
Egyptian	1_a	1.9	15_b	30.0	16	15.7
Others	13_a	25.0	9_a	18.0	22	21.6
Total	52	100	50	100	102	100

Each subscript letter denotes a subset of hospital categories whose proportions do not differ significantly from each other at the.05 level.

Women involved in the study were aged between 17 and 46 years old, and the most common age was between 26 and 30 years old (35.3%) (see table 4.2). Young women (≤25 years) were 3 times more likely to give birth in BFHI hospital (X^2= 10.356, p= 0.006).

Table 4.2: Age of participants

	BFHI N=52		Non-BFHI N=50		Total N=102	
	N	%	N	%	N	%
≤25 years	22_a	42.3	9_b	18	31	30.4
26- 30 years	19_a	36.5	17_a	34	36	35.3
>30 years	11_a	21.2	24_b	48	35	34.3
Total	52	100	50	100	102	100

Each subscript letter denotes a subset of hospital categories whose proportions do not differ significantly from each other at the.05 level.

The majority of the women were housewives (74.5%), graduated from university (61.8%), married (100%) and non-smokers (92.2%) (see table 4.3). About one third of the participants' family income was between 5000- 8000 SR per month (NZ$1613- 2580) (see table 4.3). However, there was no difference in family income between two hospitals (*p*= 0.487).

Table 4.3: Education level, occupation, and family income of participants

	BFHI N=52		Non-BFHI N=50		Total N=102	
	N	%	N	%	N	%
Education level						
lower than high school	6	11.5	6	12	12	11.8
high school	13	25	11	22	24	23.5
University undergraduate degree	32	61.5	31	62	63	61.8
postgraduate	1	2	2	4	3	2.9
Occupation						
working full time	3_a	6	11_b	22	14	13.7
student	11_a	21	0_b	0	11	10.8
housewife	37_a	71	39_a	78	76	74.5
other	1	2	0	0	1	1.0
Family income						
2000- 5000 SR/month	12	23	10	20	22	21.6
5000- 8000 SR/month	17	33	15	30	32	31.4
8000- 10000 SR/month	10	19	11	22	21	20.6
more than 10000 SR/month	9	17	14	28	23	22.5
do not know	4	8	0	0	4	4
Smoking						
Non-smokers	47	90.3	47	94	94	92.2
smokers	5	9.6	3	6	8	7.8
Marital status						
Married	52	100	50	100	102	100
Divorced	0	0	0	0	0	0

Each subscript letter denotes a subset of hospital categories whose proportions do not differ significantly from each other at the.05 level.

The education level was similar between the two hospitals as illustrated in Table 4.3 (p= 0.924). The number of working mothers who gave birth in non-BFHI hospital was higher than in the BFHI (X^2= 15.61, p< 0.0001) and the BFHI hospital included more students (see table 4.3).

More women gave birth via caesarean delivery in the non-BFHI with 70%, as compared to 42% in the BFHI hospital (X^2= 7.92, p= 0.005). The percentage of baby boys and girls was similar in both hospitals (p= 0.820) (see table 4.4). There was no association between parity and hospital type (p= 0.116). Furthermore, there was no significant difference between numbers of children raised by multiparous women in both hospitals (p= 0.071).

Table 4.4: Parity, delivery mode, baby's gender and number of children of participants

	BFHI N=52		Non-BFHI N=50		Total N=102	
	N	%	N	%	N	%
parity						
Primiparous	20_a	38.5	12_a	24	32	31
Multiparous	32_a	61.5	38_a	76	70	69
Number of children						
2	18	56	11	29	29	41
3-4	12	38	18	47	30	43
5-6	2	6	8	21	10	14
more than 6	0	0	1	3	1	2
Delivery mode						
Normal	30_a	58	15_b	30	45	44
Caesarean	22_a	42	35_b	70	57	56
Baby's gender						
boy	29_a	56	29_a	58	58	57
Girl	23_a	44	21_a	42	44	43

Each subscript letter denotes a subset of hospital categories whose proportions do not differ significantly from each other at the.05 level.

Overall, the sample consisted of 52 women at BFHI and 50 at non-BFHI. Around 63% of the sample were Saudi women, the common age was between

26 and 30 (35.3%), and most women had a university undergraduate degree (61.8%). In addition, the majority of women were multiparous (69%), and most women delivered via caesarean section (56%). Women at BFHI hospital were younger and more likely to be students, of Saudi nationality, and to give birth via vaginal delivery.

4.1.1. Infant feeding in hospital

4.1.1.1. First food given to infant

Overall, forty one percent of infants were given breast milk as the first nutritive substance, while the remaining 59% received infant formula. There was a substantial difference between the BFHI and the non-BFHI (X^2= 55.96, p< 0.0001) with only 2 (4%) infants in the non-BFHI given breast milk first compared with 77% of the infants in BFHI (see table 4.5.). Eighty one percent of participants in this study had initiated breastfeeding by time of the interview.

4.1.1.2. Changes in feeding method while in hospital

Around half of the infants who were breastfed initially were introduced to formula while in hospital and 68% of those first given formula were subsequently breastfed (see table 4.5). Thus, at time of interview median one day (range 0- 4) 81% of infants had been breastfed, and 59.8% of infants had received at least one feed of formula.

Table 4.5: Infant feeding in hospital

	BFHI		Non-BFHI		Total	
	N	%	N	%	N	%
First food						
Breast milk	40_a	77	2_b	4	42	41
Formula added after first given breast milk	19	47.5	1	50	20	48
Formula	12_a	23	48_b	96	60	59
Breastfeeding added after first formula	11	92	30	62	41	68

Each subscript letter denotes a subset of hospital categories whose proportions do not differ significantly from each other at the.05 level.

The reasons for introducing formula as a first substance are described in table 4.6 below. Hospital policy to give formula and maternal fatigue were the most frequent reasons for introducing formula as first nutritive feed (34%). The hospital policy to give formula was only reported among women who gave birth in non-BFHI hospital. Other common reasons for first introducing formula were: no milk and insufficient milk supply (25%), and baby sickness (11%).

The reasons reported for introducing formula in addition to breastfeeding were: not enough milk (45%), followed by maternal fatigue (30%), baby cannot latch on (10%), baby not satisfied with only breastfeeding (10%), no milk (10%), mother's decision to use formula (5%), baby sickness (2.5%), and baby refused mother breast (2.5%). Hospital policy to give formula was only mentioned among women who attended the non-BFHI hospitals (N=2) (see table 4.6.). Beliefs that women do not have enough milk (12.5%) and no milk (12.5%) were found among women in both types of hospital.

The median for timing for starting breastfeeding among the first breastfed infants (N=42) was 3 hours (figure 4.1) except for one woman who delayed initiation to one day postpartum due to a complication (water in lungs) during delivery.

Figure 4.1: Timing of starting breastfeeding among infants whose first feed was breast milk

While, timing of starting breastfeeding among first formula fed infants (N= 60) was delayed e.g. after five hours post-delivery and increased up to one day or more as shown in figure 4.2 (median= 11-20 hours). The median for the timing for starting breastfeeding in BFHI hospital was three hours, and in non-BFHI 11-20 hours postpartum.

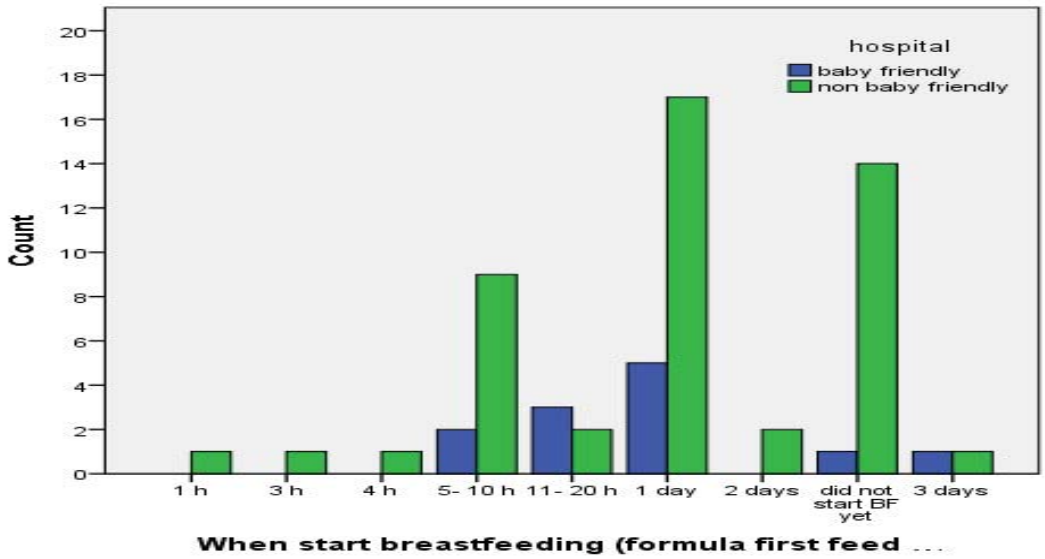


Figure 4.2: Timing of starting breastfeeding among infants who were first fed formula

Table 4.6: Reasons for introducing formula while in hospital

	Breastfeed first						Formula feed first						Total	
	BFHI N=19		Non-BFHI N=1		Total N=20		BFHI N=12		Non-BFHI N=48		Total N=60		N=80	%
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Reasons for give formula *														
Maternal fatigue	6	31.5	0	0	6	30	5	41.6	16	33.3	21	35	27	33.75
Maternal sickness	0	0	0	0	0	0	2	16.6	0	0	2	3.3	2	2.5
Mother wants to use formula	2	10.5	0	0	2	10	0	0	0	0	0	0	2	2.5
Baby sickness	1	5.2	0	0	1	5	1	8.3	7	14.5	8	13.3	9	11.25
Baby refuse breast	1	5.2	0	0	1	5	1	8.3	2	4	3	5	4	5
Baby cannot latch on	2	10.5	0	0	2	10	0	0	2	4	2	3.3	4	5
Baby does not satisfied with only breastfeeding	2	10.5	0	0	2	10	0	0	1	2	1	1.6	3	3.75
Not enough milk	9	47.3	0	0	9	45	1	8.3	0	0	1	1.6	10	12.5
No milk	2	10.5	0	0	2	10	2	16.6	6	12.5	8	13.3	10	12.5
Hospital gave formula	0	0	1	50	2	10	1	8.3	24	50	25	41.6	27	33.75

*some women gave > 1 reason

4.1.2. Problems initiating breastfeeding

Around 60% of women reported having problems initiating breastfeeding with the new baby, and there was no difference between hospitals (*p*= 0.169). Of the women who had problems, sucking (51%), latching on (34%), and positioning (21%) problems, which all can be named as practical problems, were the most highly reported problems associated with breastfeeding the new baby in both hospitals (see table 4.7.). The next most common problem was maternal post-delivery fatigue (19.3%).

Table 4.7: Problems associated with initiating breastfeeding

	BFHI N=52		Non-BFHI N=50		Total N=102	
	N	%	N	%	N	%
Women who have problems initiating breastfeeding	35_a	67	27_a	54	62	61
Type of problems women have*						
Nutritional	5	14	1	4	6	10
Sucking	19	54	13	48	32	51.6
Latching on	12	34	9	33	21	33.8
Maternal fatigue	6	17	6	22	12	19.3
Mother and baby Medical problems	1	3	0	0	1	2
Positioning	10	29	3	11	13	21
Baby refuse breast	1	3	2	7	3	5

Each subscript letter denotes a subset of hospital categories whose proportions do not differ significantly from each other at the.05 level.

*Some women had > 1 type of problem

4.1.3. Support for breastfeeding while in the hospital

Seventy-four percent of women received postpartum breastfeeding support with their new baby while in hospital; this was more common for women in the BFHI

hospital (X^2= 12.15, p< 0.0001) (see table 4.8). Women in the non-BFHI reported more support from mothers, friends, husband, and relatives, whereas women in the BFHI got more professional support from doctors, nurses and lactation consultants (p< 0.0001). Types of help provided included: practical, information and emotional help (see appendix 11).

Table 4.8: Help received to breastfeed while in hospital

	BFHI N=52		Non-BFHI N=50		Total N=102	
	N	%	N	%	N	%
Help with breastfeeding*	46_a	88.5	29_b	58	75	74
Professional help	45_a	86.5	16_b	32	61	59.8
Family and friend help	7_a	13.5	27_b	46	30	29.4

Each subscript letter denotes a subset of hospital categories whose proportions do not differ significantly from each other at the.05 level.

*Some women received both type of help

Sixty-one women (59.8%) reported receiving professional breastfeeding help from hospitals such as proper positioning and attachment, and the majority of women in the BFHI hospital (86.5%) received this type of help compared to 32% in the non-BFHI hospital. It is the policy in the BFHI hospital to give help to all women postnatal breastfeeding support, but some of the multiparous women declined when help was offered. However, in the non-BFHI hospital, the hospital policy is to only offer routine practical help and information about breastfeeding to primiparous women, of whom there were 12 in the sample, a further 4 women in the non-BFHI hospital asked for help.

4.1.4. Breastfeeding practice while in hospital

At time of interview in hospital (median= one day) 47% of women were mixed-feeding, 36.5% of women who had delivered in the BFHI hospital and 58% of

women delivered in non-BFHI hospitals as shown in Table 4.9. There is a statistically significant association between feeding method and type of hospitals (p< 0.0001) with exclusive breastfeeding more common in BFHI hospital (40%) while the majority of women in non-BFHI hospital were mixed-feeding (58%).

Table 4.9: Breastfeeding practice at time of first interview in hospital

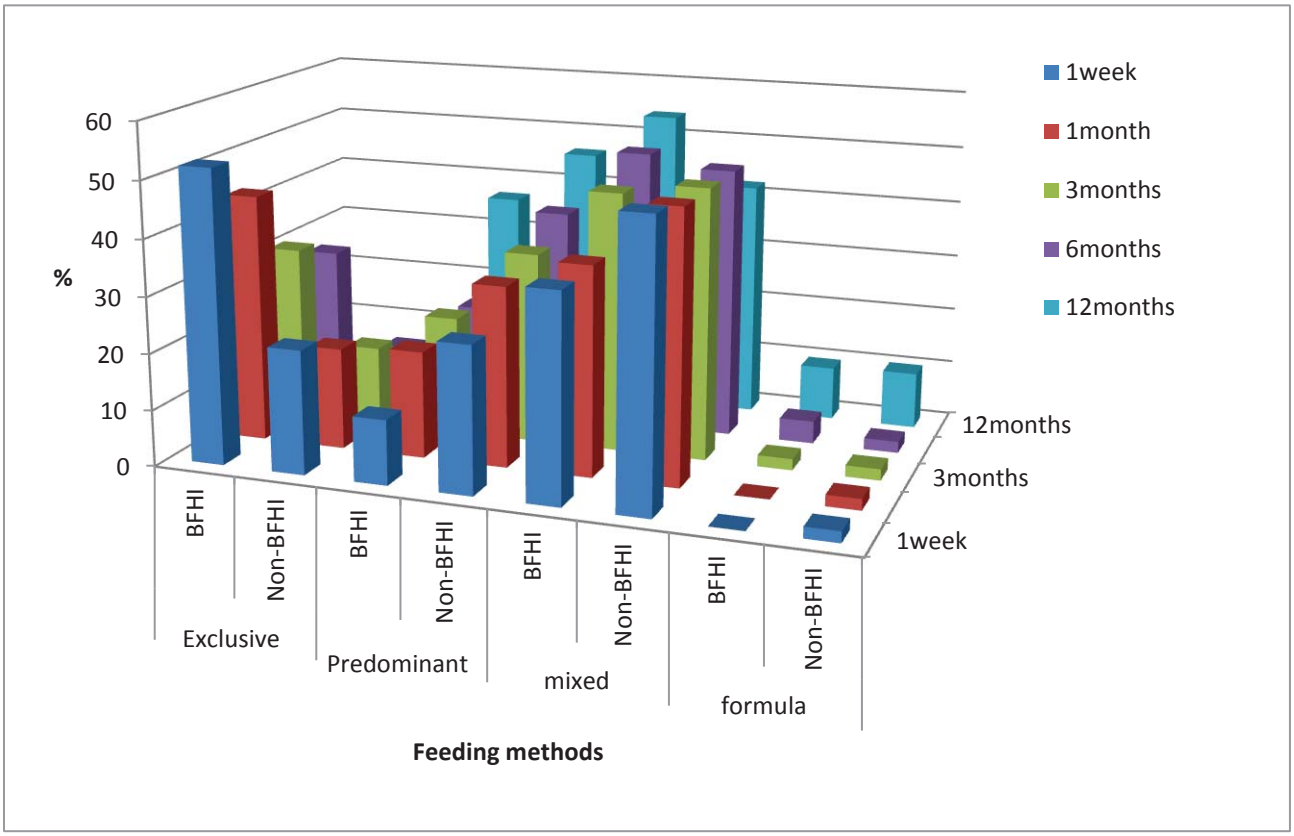
	BFHI N=52		Non-BFHI N=50		Total N=102	
	N	%	N	%	N	%
Exclusive	21_a	40.3	1_b	2	22	21.5
Full	8_a	15.3	2_b	4	10	9.8
Predominant	3_a	5.7	0_a	0	3	2.9
Mixed-feeding	19_a	36.5	29_b	58	48	47
Exclusive formula	1_a	1.9	18_b	36	19	19

Each subscript letter denotes a subset of hospital categories whose proportions do not differ significantly from each other at the.05 level.

4.1.5. Breastfeeding plan for the coming 12 months

Mixed-feeding was the most common method women planned to use for the first year of their infant's life (figure 4.3). The percentage of women who planned to exclusively breastfeed was higher and statistically significant in the BFHI group compared with the non-BFHI at one week (52% vs. 22%) (p= 0.011), and one month (44% vs. 18%) (p= 0.029), but not significant at three months (31% vs. 14%) (p= 0.217), and six months (27% vs. 10%) (p= 0.077) (see figure 4.3). It is clearly illustrated in figure 4.3 that the number of women who planned to exclusively breastfeed decreased as the infant gets older, with 37% planning to exclusively breastfeed at one week, 31% at one month, 23% at three months, and 19% at six months.

Figure 4.3: Feeding methods planned up to 12 months



Most women planned to introduce solids when their infants reached the age of six months (47%) or four months (29%) (see table 4.10). There is no association between plans to introduce solids before six months and the hospital where the baby was born (p= 0.100).

Table 4.10: When mothers plan to introduce solids

	BFHI		Non-BFHI		Total	
	N	%	N	%	N	%
Do not know	1	2	0	0	1	1
2 months or before	1	2	1	2	2	2
3 months	0	0	3	6	3	3
4 months	10	19	20	40	30	29
5 months	6	11	3	6	9	9
6 months	28	54	20	40	48	47
7 months	3	6	1	2	4	4
8 months	3	6	1	2	4	4
after more than a year	0	0	1	2	1	1
Total	52		50		102	100

When mothers planned to stop breastfeeding is shown in Table 4.11. The median duration for continuing breastfeeding in this study was 18 months. Almost half of the women (47%) were planning to continue breastfeeding until two years, which is the Quran and Hadith recommendation in addition to the WHO optimal breastfeeding period (Al-Jassir, 2006, WHO, 2001). The number of mothers who planned to stop at two years was almost the same in both hospitals (p= 0.811). About 29% of women in BFHI hospital planned to stop breastfeeding at one year compared with 10% in non-BFHI hospital. But 26% of women in non-BFHI hospital planned to stop breastfeeding gradually between 1 ½ and 2 years compared with 9% women in the BFHI hospital. Data were collapsed into categories as follows: two years; between one and a half and two years; seven months to one year; and up to six months to be able to carry out the *Chi*-square test. This showed a significant difference between hospitals (p= 0.029).

Table 4.11: When mothers will stop breastfeeding

	BFHI		Non-BFHI		Total frequency	
	N	%	N	%	N	%
Do not know	2	4	1	2	3	3
2 years	23	44	25	50	48	47
1 1/2 year- 2 years	5	9	13	26	18	18
7 months- 1 year	17	33	6	12	23	23
≤ 6 months	4	8	5	10	9	9
when the baby stop	1	2	0	0	1	1
Total	52	100	50	100	102	100

Mothers reported reasons why they expected to stop breastfeeding before two years including: self-weaning (39%), nutritional (22%), psychological (15%), life-style (9%), medical (6%), and previous experience factors (2%). Self-weaning factors, which included baby having teeth and starting to bite, and baby was old enough were the most frequent reasons given by mothers planning to stop breastfeeding before 2 years. Nutritional factors, which included breastfeeding does not satisfy baby, baby refuses food if continuing to breastfeed longer than a year and not having enough milk supply were also frequently reported by mothers (see table 4.12). One young mother (aged 17 years old) when asked about why she would like to stop breastfeeding at 6 months reported that “I am doing like what others have been doing”.

Table 4.12: Reasons for intent to stop breastfeeding before 2 years

	BFHI N=29		Non-BFHI N=25		Total frequency N=54	
	N	%	N	%	N	%
Psychological factors	6	20	2	8	8	14.8
Nutritional factors	7	24	5	20	12	22
Medical factors	0	0	3	12	3	5.5
Self-weaning factors	12	41	9	36	21	38.8
Life-style factors	5	17	0	0	5	9
Previous experience	1	3	0	0	1	2

*Some women gave > 1 reason

4.1.6. Knowledge

Women in the study reported different markers which guide them to know when to breastfeed their infants, including: “on demand”, when the baby is crying, when she feels her breast is full and scheduled feeding. Scheduled feeding was the most frequent way mothers reported knowing when to breastfeed (53%); with 2 hourly being most common (39%) (see table 4.13). Interestingly 50% of women in the BFHI hospital reported breastfeeding every 2 hours, which is what the breastfeeding educator at the hospital advised women to do to know when to breastfeed the baby which is not recommended by the BFHI.

Table 4.13: How women know when to breastfeed

	BFHI N=52		Non-BFHI N=50		Total frequency N=102	
	N	%	N	%	N	%
On demand	12	23	7	14	19	19
When baby cries	12	23	21	42	33	32
Time						
Every 2 hours	26	50	14	28	40	39
Every 3 hours	2	4	11	22	13	13
Every 4 hours	1	2	0	0	1	1
When mother’s feel breast full	1	2	2	4	3	3

*Some women gave > 1 respose

When women were asked about how she could identify that her baby was getting enough milk, different answers were reported as shown in table 4.14. The most common response were that baby relinquishes nipple (53%) followed by baby falls to sleep (27.5%). Only a few mothers (all at the BFHI) reported baby passing urine or faces, and putting on weight as markers helping her to know that baby is getting enough milk. Women who knew this information said that they had asked the lactation consultant for it.

Table 4.14: How women know that their baby is getting enough milk

	BFHI N=52		Non-BFHI N=50		Total frequency N=102	
	N	%	N	%	N	%
Baby stop crying	1	2	0	0	1	1
Baby sleep	12	23	16	32	28	27.5
Burp	3	6	4	8	7	7
time	5	10	1	2	6	6
Baby waste						
Urinary about 8/ day	1	2	0	0	1	1
Defecate 2-5/ day	6	12	0	0	6	6
Stop sucking						
Relinquishes nipples	21	40	33	66	54	53
Stop sucking	1	2	0	0	1	1
Spill milk	2	4	0	0	2	2
Baby put on weight	4	8	0	0	4	4
Do not know	6	8	5	10	11	11

*Some women gave >1 sign

About three quarters of women (71.5%) knew the WHO recommendation for the recommended exclusive breastfeeding duration and timing to introduce solids (i.e. 6 months postpartum) (table 4.15). Women in the BFHI hospital were more likely to give the right answer (p= 0.034). Women who knew the recommendation were 3 times more likely to plan to introduce solids at 6

months (X^2= 29.19, p< 0.0001). But a sizable portion (31%) of those who knew the recommended age intended to introduce solids before then.

Table 4.15: Association between knowledge about WHO recommendation regarding complementary feeding and plans to introduce solids

	WHO recommendations as believed by women							
When plan to introduce solids	<6 months		6 months		>6 months		Total	
	22	21.5%	73	71.5%	7	6.8%	102	100%
	N	%	N	%	N	%	N	%
<6 months	18	82	23	32	3	43	44	43
At 6 months	3	14	44	60	1	14	48	47
>6 months	1	4	5	7	3	43	9	9
Do not know	0	0	1	1	0	0	1	1

The important factors behind a mother's decision to breastfeed, mix feed, or to use formula are shown in table below (see table 4.16). The baby's health (63%), breast milk factors (39%), life style (25%), and mother health factors (19%) were the most frequent factors reported by mothers.

Women gave many reasons to breastfeed their infants which were categorised as follow;

Baby health factors which make mothers choose to breastfeed included: "immunity", baby health in general, "breastfeed babies are smarter". A breastfed baby who does not put on weight was reported as a baby health factor which made mothers use mixed-feeding.

Mother health factors mentioned by mothers include: that "breastfeeding help me to lose weight", protect from cancers, "help uterine contractions" (as factors encourage women to breastfeed), whereas breastfeeding being painful for them

and “I want to use contraceptive pills” makes women choose mixed-feeding or exclusive formula feeding.

Breast-milk factors which make women choose breastfeeding include: “breast milk is easier and clean and it does not need preparation”, has unique composition, is “nutritious”, breastfeeding is the best. However, some women reported “breastfeeding as time consuming” which make them use mixed-feeding or exclusive formula feeding.

Formula factors reported by mothers include mothers’ favoured mixed or exclusive formula because “formula is fortified with nutrients that breast milk may lack of”. Negative statements reported by mothers who favoured breastfeeding included: the “formula needs for preparation and sterilization”, risks of formula, poor formula qualities, and that “formula causes wind”.

Milk supply factors as reported by mothers who preferred mixed or exclusive formula included no milk, “I do not have enough milk”, and baby is not satisfied with only breastfeeding.

The life-style factors included the fact that mothers are employees or students, busy, or wanted to be able to go out**.**

Mother behaviour factors included mother “I do not like breastfeeding”, good or bad breastfeeding experiences, breastfeeding in public, and getting tired or “breastfeeding is boring”.

The baby behaviour factors included “my baby refused my breast”.

Table 4.16: Important factors when making decisions about breastfeeding

	% of women who mentioned this factors*		
	BFHI N=52	**Non-BFHI N=50**	**Total N=102**
Baby health factors	44	82	63
Mother health factors	13	24	19
Breast milk facts	29	50	39
Formula facts	4	8	6
Milk supply factors	6	4	5
Life-style factors	33	18	25
Mother behaviours	12	2	7
Baby behaviours	2	0	1
Religious factors	4	6	5
Bonding	2	14	8
Do not know	0	2	1

*Some women gave >1 factor

When women were asked whether getting negative comments on her breastfeeding practice, such as breast milk alone is not enough for the baby, or that breastfeeding will affect her figure negatively, will impact on her breastfeeding practice, 101 women answered no and only one woman was not sure about it.

4.1.7. Sources of breastfeeding information

Over half of the women (62.7%) got information about breastfeeding while they were pregnant (see appendix 12). No difference was found between hospitals (p= 0.797).

Women reported using many sources to get breastfeeding information as shown in table 4.17 below. The internet (24.5%) and books (21.5%) were the most frequent sources used by mothers to get information about breastfeeding. In addition, 14% of women received breastfeeding information from their mothers. None of the participants reported receiving breastfeeding information

from magazines, newsletters, or radio. Prenatal information from lactation consultants was only provided in the BFHI hospital. Although this service was available for free to all women planned to deliver in this hospital, less than a quarter (21%) went to the prenatal breastfeeding session.

Other sources of breastfeeding information were from sisters, family members, husbands, school, previous experience, and pamphlets. The types of breastfeeding information women got during pregnancy varied between women. Some women just got general information about the importance and benefits of breastfeeding; others received specific information about breastfeeding benefits for mothers such as losing weight and uterine constrictions, and for baby health such as there is no relationship between baby health and weight.

Table 4.17: Sources of breastfeeding information during pregnancy

	% of women who used sources *		
	BFHI N=52	**Non-BFHI N=50**	**Total N=102**
Internet	19	31	24.5
Books	19	25	21.5
Magazines or news papers	0	0	0
TV	4	12	8
Radio	0	0	0
Doctor	2	2	2
BFHI lactation consultant	11	0	6
Mother	19	8	14
Mother in law	2	0	1
Friends	4	2	3
Others	20	20	20

*Some women use > 1 source

Some women were interested to search for breastfeeding health information and others were interested to search for practical breastfeeding information

such as proper positioning and attachments. Moreover, some mothers were interested in knowing about emotional facts about breastfeeding, such as bonding between mother and her baby.

4.1.8. Attitudes

The Attitudes Scale included nine questions in total scored from one (strongly disagree) to five (strongly agree); seven questions were taken from the IIFAS in addition to two questions added for this study. The mean attitudes score was 32.9 ± 3.4 (mean ± SD), there was no difference between the BFHI and non-BFHI scores (32.8± 3.7, 32.9± 3.1, *p*= 0.413).

The attitudes scores ranged between 45 (maximum) and 9 (minimum), participants were divided into 3 groups: group 1 with scores between 45 and 36, group 2 between 35 and 27, group 3 between 26 and 9. Results are presented in table 4.18 below, most women were found to have medium attitudes and there was no difference between the hospitals (*p*= 0.127).

Table 4.18: Baseline attitudes scale

	BFHI		Non-BFHI		Total frequency	
	N	%	N	%	N	%
Between 45 and 36 scores	11	21	10	20	21	21
Between 35 and 27 scores	37	71	40	80	77	75
Less than 27 scores	4	8	0	0	4	4
Total	52	100	50	100	102	100

The results of individual attitude questions are shown in table 4.19. Reverse scoring was used for the negative attitudes statements. There were very few women who have chosen neutral. The majority of women agreed or strongly agreed that breastfeeding is more convenient than formula feeding (88.3%), and that breastfeed babies are healthier than formula fed babies with 87.3%. A high percentage of women strongly disagreed/ disagreed that fathers feel left out if a mother breastfeeds her child (77.4%); formula is as healthy for infants as breast milk (90.4%); the benefits of breast milk last only as long as the baby is breastfed (86.3%); a heavier baby is a healthier baby (81.2%); and that breastfeeding affect a mothers figures negatively (85.3%).

Table 4.19: Women's attitudes toward breastfeeding

Women attitudes	Strongly Disagree %	Disagree %	Neutral %	Agree %	Strongly agree %
Women should not breastfeed in public places such as restaurant*	2.9	33.3	7.8	52.0	3.9
Formula feeding is the better choice if a mother plans to work outside the home*	2.0	38.2	2.9	51.0	5.9
Father feel left out if a mother breastfeed*	2.9	74.5	3.9	15.7	2.9
Breastfeeding is more convenient than formula feeding	1.0	4.9	5.9	56.9	31.4
Formula is as healthy for an infant as breast milk*	23.5	66.7	3.9	4.9	1.0
Breastfed babies are healthier than formula fed babies	1.0	5.9	5.9	41.2	46.1
The benefits of breast milk last only as long as the baby is breast fed*	5.9	80.4	4.9	6.9	2.0
A heavier baby is healthier*	2.0	79.4	4.9	11.8	2.0
Breastfeeding affects the maternal figures negatively*	5.9	79.4	2.0	12.7	0

*Reverse scoring was used for the negative questions

Two negative attitudes related to breastfeeding were reported by a slight majority of women. The majority of women (55.9%) believed that women should not breastfeed in public places such as restaurants and shopping malls. And 56.9% of women also believed that formula feeding is the better choice for a mother if she is working or needing to go out compared with 40.2% who did not (see table 4.19).

4.1.9. Breastfeeding Self-Efficacy Scale (BSES)

The breastfeeding self-efficacy scale (BSES) consists of 14 questions, each scored from 1 (not at all confident) to 5 (very confident). The BSES maximum score is 70 and the minimum score is 14, the mean was 47.6± 5.2 and there was no difference between BFHI and non-BFHI scores (47.4± 5.13, 48.0± 5.4, p= 0.893).

Mothers who scored between 70 and 56 were included in the very confident mothers group, mothers with between 55 and 42 were in the confident breastfeeding group, and women with scores between 41 and 28 grouped as sometimes confident group (see table 4.20). At the 1 month interview, women who shifted to exclusive formula feeding were not asked about BSES. Over all, there was no major changes between baseline and 1 month BSES, although slightly more women scored as very confident at 1 month.

Table 4.20: Breastfeeding self-efficacy scale results

	Baseline			1 month postpartum		
	BFHI N=52	Non-BFHI N=50	Total N= 102	BFHI N=32	Non-BFHI N=39	Total N=71
	%	%	%	%	%	%
Very confident (between 70 and 56 scores)	4	6	5	9	15	13
Confident (between 55 and 42 scores)	85	84	84	84	64	73
Sometimes confident (between 41 and 28 scores)	11	10	11	6	21	14

The baseline BSES scores were not different between the BFHI hospital and the non-BFHI hospital (47.44± 5.1, 48.1± 5.44, *p*= 0.893). A relationship between BSES and women's ethnicity was found (*p*= 0.055).

4.1.10. Questions about previous child

4.1.10.1. Previous breastfeeding practice

Multiparous mothers count for 69% of the total participants. The feeding practice used with the previous child is shown in table 4.21. Mixed-feeding was the most popular method (44.6%) that was used to feed the previous child up to 3 months. Then, this percentage started to decrease (24%) and exclusive formula feeding method starts to increase at 6 months and 12 months with 31%, and 46% respectively. There was no association found between breastfeeding method and type of hospital, as most women delivered their previous child in a non-BFHI as this initiative was only initiated one and a half years ago. No association was found between the breastfeeding methods multiparous women

have used with their new baby and previous child during hospitalisation (*p*= 0.106).

Table 4.21: Feeding practice with previous child

	Total	
	N= 70	%
Feeding practice while in hospital		
Exclusive*	18	26
Predominant	11	16
Mixed-feeding	34	48
Exclusive formula feeding	7	10
Feeding practice at 1 week		
Exclusive*	19	27
Predominant	17	24
Mixed-feeding	30	43
Exclusive formula feeding	4	6
Feeding practice at 1 month		
Exclusive*	13	18
Predominant	21	30
Mixed-feeding	32	46
Exclusive formula feeding	4	6
Feeding practice at 3 months		
Exclusive*	8	12
Predominant	21	30
Mixed-feeding	29	41
Exclusive formula feeding	12	17
Feeding practice at 6 months		
Exclusive*	6	9
Predominant	22	31
Mixed-feeding	20	29
Exclusive formula feeding	22	31
Feeding practice at 12 months		
Exclusive*	6	9
Predominant	15	21
Mixed-feeding	17	24
Exclusive formula feeding	32	46

*Exclusive breastfeeding as defined by women

4.1.10.2. Breastfeeding problems with previous child

Sixty percent of multiparous mothers reported having problems initiating breastfeeding with their previous child. Among women who had problems practical problems including the sucking (71%), latching on (31%) and

positioning (29%) were the most common problems mothers had. Thirty percent of multiparous women reported having problems during the full duration of breastfeeding, but during this time nutritional problems such as continuing breastfeeding makes baby refuse food, and sucking problems like sore nipples, baby refusing the mother's breast and starting to bite were the most frequent problems mothers reported (see table 4.22).

Table 4.22: Problems associated with initiating and continuing breastfeeding previous child

	Number of women who have problems (N=70)	**%**
Women who have problems initiating breastfeeding previous child	42	60
Type of problems women have *		
Nutritional	2	5
Sucking	30	71
Latching on	13	31
Mother physical	2	5
Mother and baby medical problems	3	7
Positioning	12	29
Women who had problems during period of breastfeeding previous child	21	30
Type of problems women have *		
Nutritional	9	43
Sucking	7	33
Latching on	2	10
Mother and baby medical problems	1	5
Having teeth or baby refuse breast	8	38

*some women have >1 problem (n=70).

Table 4.23 below shows that the percentage of multiparous women who reported having problems initiating breastfeeding with the new baby and the previous baby were the same with around 60%. There was not an association between having breastfeeding problems with the new baby and the previous child (p= 0.235).

Table 4.23: Problems initiating breastfeeding with new and previous babies

	New baby		Previous baby	
	N	%	N	%
Having problems				
Yes	41	59	42	60
No	29	41	28	40

(n=70)

4.1.10.3. Breastfeeding support with previous child

When multiparous women were asked about getting breastfeeding support with their previous child, 64% of women reported receiving support (see table 4.24). Mother and mothers-in-law (82%) in addition to husband's support (40%) were the most frequent type of support mothers received with breastfeeding their previous child. More emotional and information support was provided from family than professionals.

Table 4.24: Support received breastfeeding previous child

	Total frequency	
	N	%
Multiparous women who got breastfeeding support with previous child	45	64
Lactation consultant support		
Information	1	
Information+ practical	2	
Information+ emotional	1	
Information+ emotional+ practical	2	
Total	6	13
Doctor support		
Information	2	
Practical	1	
Total	3	6.6
Mother and mother in law support		
Information	2	
Practical	2	
Emotional	25	
Information+ emotional	4	
Practical+ emotional	1	
Information +practical	4	
Total	37	82
Friends support		
Information+ emotional	2	4
Husband support		
Emotional	14	
Information	2	
Information+ practical	1	
Information+ emotional	1	
Total	18	40
Others		
Practical	1	
Emotional	4	
Practical+ emotional	1	
Practical+ information	2	
Total	8	17.7

*Some women received > 1 kind of support

4.1.10.4. Reasons for stop breastfeeding or introducing formula

Fifty-six percent of multiparous women introduced formula in addition to breastfeeding for their previous child and reasons are presented in table 4.25 below. Milk supply (52.5%) (not enough milk supply and only breast milk does

not satisfied baby) and life style (35%) (work, study, go out) factors were the most common reasons for introducing formula to the previous child. One woman reported that professional advice was given to her that breastfeeding after six months was not beneficial. Another woman reported that she wanted to give her baby formula, but her baby refused it so she continued breastfeeding (see table 4.25).

Fifty-six percent of multiparous women reported stopping breastfeeding before 2 years and the reasons are shown in table 4.25. Self-weaning (36%), including baby biting and baby losing interest in breastfeeding, was the most frequent reason for stopping breastfeeding the previous child before two years, followed by new pregnancy (23%), and usage of contraceptive pills (13%).

Table 4.25: Reasons for introducing formula or stopping breastfeeding for previous child

	N=40	%
Why introduce formula*		
Lifestyle	14	35
Milk supply	21	52.5
Medical	7	17.5
Mother behaviour	3	7.5
Baby behaviour	3	7.5
Professional advice	2	5
Mother physical	2	5
	N=39	%
Why stop breastfeeding*		
Mastitis	1	2.5
Medical advice	2	5
Medical reasons	3	8
New pregnancy	9	23
No milk supply	3	8
Work	1	2.5
Self-weaning	14	36
Contraceptive Pills	5	13

*some women give > 1 reason

4.1.11. Comparisons between previous breastfeeding practice and new intentions

A comparison by using Chi-square test was made to find if there was an association between multiparous mothers' breastfeeding practice with previous child and intentions for new baby at 1 week, 1 month, 3 months, and 12 months. There was an association between previous breastfeeding experience and the new feeding plan among multiparous mothers at each time up to 12 months (at 1 week (p= 0.001), 1 month (p< 0.0001), 3 months (p< 0.0001), 6 months (p< 0.0001), and 12 months (p= 0.001).

4.2. One month postpartum questionnaire

Twenty-five women out of 102 did not participate in the study at the one month postpartum follow up, leaving 77 women (36 from BFHI and 41 from non-BFHI) to be interviewed. The 77 participants were interviewed by phone calls, and six of them had stopped breastfeeding and shifted to exclusive formula feeding. There was no significant difference in demographics between women who did not respond at 1 month and women who followed-up at 1 month (see appendix 10).

Women in both hospitals were similar in age (p= 0.128), educational level (p= 0.940), and family income (p= 0.627), but there was a difference between both hospitals in women's occupation (p< 0.0001). Women in non-BFHI were more likely to be employed (22% vs.2%) compared with women in BFHI who were more likely to be students (30.6% vs. 0%) (see table 4.26).

Table 4.26: Age, education level, occupation, and family income of participants

	BFHI N=36		Non-BFHI N=41		Total N=77	
	N	%	N	%	N	%
Subjects age						
≤ 25 years	12	33.3	7	17	19	25
26- 30 years	15	41.7	15	36.5	30	39
≥ 30 years	9	25	18	43.9	27	35
Did not mentioned	0	0	1	2.4	1	1
Education level						
Lower than high school	3	8.3	4	9.8	7	9.1
High school	11	30.6	10	24.4	21	27.3
Undergraduate degree	21	58.3	26	63.4	47	61
Postgraduate	1	2.8	1	2.4	2	2.6
Occupation						
Working full time	2_a	5.6	9_b	22	11	14.3
Student	11_a	30.6	0_b	0	11	14.3
Housewife	21_a	58.3	32_a	78	53	68.8
Other	2_a	5.6	0_a	0	2	2.6
Family income						
2000- 5000 SR/month	7	19.4	8	19.5	15	19.5
5000- 8000 SR/month	14	38.9	12	29.3	26	33.8
8000- 10000 SR/month	8	22.2	10	24.4	18	23.4
more than 10000 SR/month	6	16.7	11	26.8	17	22.1
Do not know	1	2.8	0	0	1	1.3
Smoking						
Non-Smokers	33	91.7	39	95.1	72	93.5
Smokers	3	8.3	2	4.9	5	6.5
Marital status						
Married	36	100	41	100	77	100
Divorced	0	0	0	0	0	0

Each subscript letter denotes a subset of hospital categories whose proportions do not differ significantly from each other at the.05 level.

Women in both hospitals were also similar in delivery mode (p= 0.102), parity (p= 0.38), and number of children multiparous women have (p= 0.394) (see table 4.27).

Table 4.27: Parity, delivery mode, and number of children

	BFHI N=36		Non-BFHI N=41		Total 77	
	N	%	N	%	N	%
parity						
Primiparous	13	36.1	11	26.8	24	31
Multiparous	23	63.9	30	73.2	53	69
Number of children						
2	10	27.7	8	19.5	18	34
3-4	11	30.6	16	39	27	51
5-6	2	5.6	6	14.6	8	15
Delivery mode						
Normal	18	50	13	32	31	40
Caesarean	18	50	28	68	46	60

4.2.1. Feeding method and plans at one month

At one month, mixed-feeding was the most popular method mothers used for feeding (58%). Only nine percent of mothers were still exclusively breastfeeding; their infants had never received formula. Because formula was given as the first food to the new-born infants in the non-BFHI hospital, infants born in the non-BFHI hospital could not be classified as exclusively breastfed, but 34% of women who gave birth in the non-BFHI hospital were fully breastfeeding at one month. Eight percent of women had shifted to exclusive formula feeding at one month postpartum (see table 4.28). There was no difference in feeding method used at one month between hospitals (X_2= 0.72, p= 0.395). Even though infants belonging to mothers in non-BFHI were first introduced to formula as part of hospital policy, they were more likely to be fully breastfed after discharge from hospital up to one month, compared with the BFHI (34% vs.19.4%).

There was an association between mother's feeding intention at birth and real practice at 1 month postpartum (X^2= 12.07, *p*= 0.002)

Table 4.28: Breastfeeding practice at 1 month

	BFHI		Non-BFHI		Total frequency	
	N	%	N	%	N	%
Exclusive	7	19.4	0	0	7	9
Full	0	0	14	34	14	18
predominant	3	8.3	2	5	5	7
Mixed-feeding	22	61	23	56	45	58
Exclusive formula	4	11	2	5	6	8
Total	36	100	41	100	77	100

When women were asked about feeding method planned at three, six, and 12 months, mixed-feeding was again the most popular method (42%- 46%).

Table 4.29: Feeding plans up to 12 months

	BFHI N=36		Non-BFHI N=41		Total frequency N=77	
	N	%	N	%	N	%
3 months						
Exclusive breastfeeding	6	16.7	13	31.7	19	24.7
Predominant feeding	3	8.3	3	7.3	6	7.8
Mixed-feeding	23	63.9	23	56.1	46	59.7
Exclusive formula	4	11.1	2	4.9	6	7.8
6 months						
Exclusive breastfeeding	6	16.7	13	31.7	19	24.7
Predominant feeding	3	8.3	2	4.9	5	6.5
Mixed-feeding	23	63.9	23	56.1	46	59.7
Exclusive formula	4	11.1	3	7.3	7	9.1
12 months						
Exclusive breastfeeding	6	16.7	13	31.7	19	24.7
Predominant feeding	3	8.3	2	4.9	5	6.5
Mixed-feeding	21	58.3	21	51.2	42	54.5
Exclusive formula	6	16.7	5	12.2	11	14.3

The percentage of women who planned to exclusively breastfeed was constant from three to 12 months (19%) (see table 4.29).

4.2.1.1. Exclusive or full breastfeeding

At one month, only 24% of mothers who exclusively or fully breastfed reported given bottles after discharge from hospital and that was for one day in the whole period of one month. When mothers were asked about the reason, the reason was that the baby had colic or baby was sick (see table 4.30).

Table 4.30: Exclusive or full breastfeed mothers descriptions at 1 month

	BFHI N=7		Non-BFHI N=14		Total frequency N=21	
	N	%	N	%	N	%
If gave bottles	1	14	4	28.5	5	24
When was given						
Once in entire period	1	14	3	21	4	19
What in bottle						
Herbal tea	1	14	2	14	3	14
Formula	0	0	1	7	1	8
Water+ herbal tea	0	0	1	7	1	8
Why bottle was given						
Baby health	1	-	3	-	4	-
Frequency						
Once a day	0	0	2	14	2	10
Twice a day	1	14	0	0	1	8

4.2.1.2. Predominant breastfeeding

At one month women who were predominantly breastfeeding (N= 5) reported introducing a bottle at hospital (60%) with herbal tea in it (60%) and at a frequency of once daily (60%). Reasons reported for giving herbal tea,

expressed breast milk or water was because of baby health such colic or constipation or due to mother being busy (see table 4.31).

Table 4.31: Predominant breastfeed mothers descriptions at 1 month

	BFHI N=3		Non-BFHI N=2		Total frequency N=5	
	N	%	N	%	N	%
When bottle first given						
At hospital	2	66	1	50	3	60
1 - 3 days after discharge from hospital	0	0	1	50	1	20
One month postpartum	1	34	0	0	1	20
What in bottles						
Herbal tea	2	66	1	50	3	60
Water+ herbal tea	1	34	0	0	1	20
Expressed breast milk+ herbal tea	0	0	1	50	1	20
Why bottles given						
Baby health	3	-	2	-	5	-
Busy	0		1		1	
Frequency						
Once a week	0	0	1	50	1	20
2 - 3 times a week	1	34	0	0	1	20
Once a day	2	66	1	50	3	60

4.2.1.3. Mixed-feeding

Mixed-feeding was the most common feeding method used at one month. When women were asked about the timing of introduced formula, 44% of the women reported first introducing formula at hospital (see table 4.32). As 44% of women introduced formula at hospital, only women who introduced formula after discharge from hospital were asked about reasons for introducing formula. The main reasons reported for using mixed-feeding at one month were: insufficient milk supply (28.8%) and life-style, e.g. being a working mother (17.7%). The most common frequency of breastfeeding was between three and

seven times a day (56%) and the frequency of formula feeding was between two and three times a day (47%). Herbal tea was the most common liquid given in a bottle other than formula. It was found that seven percent of women gave their babies Cerelac mixed with formula milk.

Table 4.32: Mixed-feeding descriptions at 1 month

	BFHI N=22		Non-BFHI N=23		Total frequency N=45	
	N	%	N	%	N	%
Breastfeeding frequency/ day						
Do not know	3	13.5	0	0	3	6.5
2 times or less/ day	3	13.5	0	0	3	6.5
3- 7 times a day	9	41	16	70	25	56
8-12 times a day	2	9	3	13	5	11
Breastfeeding more than formula	5	23	4	17	9	20
Formula frequency/ day						
1 bottle a day	4	18	5	21.5	9	20
2-3 bottles a day	8	36	13	57	21	47
4 or more bottles a day	6	27	5	21.5	11	24
With every breastfeed as supplement	3	14	0	0	3	7
More than breast milk	1	5	0	0	1	2
What was given in bottle other than formula						
Only formula	7	32	3	13	10	22
Water	2	9	3	13	5	11
Herbal tea	6	27	10	44	16	36
Water with honey	1	4.5	1	4	2	4.4
Cerelac	1	4.5	1	4	2	4.4
Water+ herbal tea	3	14	3	13	6	13
Expressed breast milk+ herbal tea	1	4.5	0	0	1	2.2
Dates with water+ herbal tea	0	0	2	9	2	4.4
Cerelac+ water with honey	1	4.5	0	0	1	2.2
When baby was first given formula						
At hospital	7	32	13	57	20	44
1-3 days after discharge	5	23	2	8.6	7	15.5
1 week after discharge	3	13	2	8.6	5	11
2 weeks after discharge	2	9	4	17	6	13
3 weeks after discharge	0	0	2	8.6	2	4.4
1 month after discharge	5	23	0	0	5	11
Why gave formula						
Baby health	0		1		1	
Mother health	0		3		3	
Milk supply	7		6		13	
Life-style	6	-	2	-	8	-
Breastfeed in public	2		0		0	

4.2.1.4. Exclusive formula feeding

By one month after birth, six mothers had shifted to exclusive formula feeding; four of them were from the BFHI hospital. The reasons for stopping breastfeeding were: baby or maternal sickness, milk supply factors, baby refusing the breast, mothers did not like breastfeeding in public, and work or being busy. Most of women stopped breastfeeding during the first two weeks after discharge from hospitals (66%) (see table 4.33).

Table 4.33: Exclusive formula feeding mothers descriptions at 1 month

	BFHI N=4		Non-BFHI N=2		Total N=6	
	N	%	N	%	N	%
When bottle first introduced						
At hospital	1	25	2	100	3	50
1 -3 days after discharge	2	50	0	0	2	33
2 weeks after discharge	1	25	0	0	1	17
Why mother gave formula						
Baby health	1		0		1	
Mother health	0		1		1	
Milk supply	2	-	0	-	2	-
Life-style	0		1		1	
Formula facts	1		0		1	
Baby or mother behaviour	1		0		1	
When formula first introduced						
At hospital	1	25	2	100	3	50
1-3 days after discharge	2	50	0	0	2	33
2 weeks after discharge	1	25	0	0	1	17
When baby stop breastfeeding						
1 week	1	25	1	50	2	33
2 weeks	2	50	0	0	2	33
3 weeks	0	0	1	50	1	17
One month	1	25	0	0	1	17

4.2.2. Breastfeeding encouragement and discouragement at one month

Only four mothers (5%) out of the 77 reported receiving negative comments regarding breastfeeding from family or friends. However, none of them were affected by those comments and maintained the same feeding method they were using originally. However, when women were asked about receiving support after discharge from hospital, 74% of women reported getting support with breastfeeding. Mothers (95%) and husbands (54.3%) were the most supportive people who encouraged women to breastfeed, with some support from professionals such doctors (35%) and lactation consultants (7%) as well. Support from others was also provided from sister-in-law, father, investigator, and a nutritionist (see table 4.34). Table 4.34 illustrates that women who delivered at the non-BFHI hospital (80%) received more support than women delivered at the BFHI hospital (67%). It was found that mothers who received support at baseline were less likely to exclusive/ fully breastfeed at one month (p= 0.043). Since Egyptian mothers delivered in non-BFHI and did not receive any education or support regarding breastfeeding and were exclusively/ or fully breastfed at one month postpartum, and other women who delivered in a BFHI and received help were mostly mixed feed. This relationship is no longer exist when exclude Egyptian mothers (p= 0.082). No association was found between support received after discharge up to 1 month and feeding method used at 1 month (p= 0.061).

Table 4.34: Breastfeeding support from discharge from the hospital until 1 month postpartum

	BFHI N=36		Non-BFHI N=41		Total frequency N=77	
	N	%	N	%	N	%
If received support						
Yes	24	67	33	80	57	74
no	12	33	8	20	20	26
Lactation consultant support						
Information+ emotional	3	12.5	0	0	3	5.2
Doctor support						
Information	0	0	2	6.1	2	3.5
Emotional	0	0	3	9.1	3	5.3
Information+ emotional	2	8.3	13	39.4	15	26.3
Total	2	8.3	18	54.6	20	35
Sister support						
Emotional	6	25	1	3	7	12.3
Information+ emotional	2	8.3	0	0	2	3.5
Total	8	33.3	1	3	9	15.8
Mother and mother in law support						
Practical	1	4	0	0	1	1.7
Emotional	22	91	27	81.8	49	85.9
Information+ emotional	1	4	3	9	4	7
Total	24	100	30	91	54	95
Husband support						
Emotional	8	33.3	21	63.6	29	50.9
Information+ emotional	0	0	1	3	1	1.8
Total	8	33.3	22	66.6	30	52.7
Friends support						
Emotional	2	8.3	1	3	3	5.3
Others support						
Information	0	0	1	3	1	1.8
Emotional	0	0	2	6.1	2	3.5
Information+ emotional	2	8.3	0	0	2	3.5
Total	2	8.3	3	9	5	8.8

4.2.3. Problems initiating breastfeeding and feeding method at 1 month

Primiparous mothers counted for 31% of the total sample followed-up at one month postpartum. Around two-thirds (60%) of primiparous and multiparous mothers reported having problems initiating breastfeeding. No association was found between feeding type at 1 month and having problems initiating breastfeeding (X_2= 2.0, p= 0.363,). When this association was tested among primiparous and multiparous mothers separately, again there was no association either among primiparous (p= 0.185), or multiparous mothers (p= 0.845) (see table 4.35).

Table 4.35: Association between parity and having problems initiating breastfeeding

	N	%
If have problems initiating breastfeeding (All subjects)		
Yes	47	61
No	30	39
Total	77	100
If primiparous mothers have problems initiating breastfeeding		
Yes	15	60
No	9	40
Total	24	31
If multiparous mothers have problems initiating breastfeeding		
Yes	32	60
No	21	40
Total	53	69

4.2.4. Association between ethnicity and feeding method at 1 month

It was found that breastfeeding practice varies significantly between ethnic groups (p< 0.0001). All the Egyptian (100%) mothers were fully breastfeeding their babies at one month postpartum whereas most Saudi mothers (70%) were mixed-feeding their babies and only 13% were exclusively or fully breastfeeding (see table 4.36).

Table 4.36: Feeding practice at 1 month in relation to ethnicity

	Saudi		Egyptian		others		Total	
	N	%	N	%	N	%	N	%
Exclusive breastfeeding	2_a	4.1	0	0	4_a	22.2	6	7.7
Full breastfeeding	4	8.3	11_b	100	1	5.5	16	20.7
Predominant breastfeeding	3_a	6.2	0	0	1_a	5.5	4	5.1
Mixed-feeding	34_a	70.8	0	0	11_a	61.1	45	58.4
Exclusive formula feeding	5_a	10.4	0	0	1_a	5.6	6	7.8
Total	48	62.3	11	52.4	18	23.4	77	100

Each subscript letter denotes a subset of ethnicity categories whose proportions do not differ significantly from each other at the P= 0.05 level.

4.2.5. Association between feeding methods at one month and demographic characteristics

No association was found between feeding methods used at one month postpartum and mother's age (p= 0.926), education (p= 0.621), occupation (p= 0.174), family income (p= 0.192), parity (p= 0.115), delivery mode (p= 0.061) and number of children multiparous mothers have (p= 0.197).

4.2.6. BSES and attitudes and feeding method at 1 month

The majority of women were confident with breastfeeding at baseline (84%) and at one month (70%) with no difference between hospitals at either baseline (p= 0.357) or one month (p= 0.253) postpartum. However, the feeding method used at one month was found to be associated with baseline BSES (p= 0.029). The BSES scores were M= 50.0± 4.3 among exclusive breastfeeding women and M= 46.4± 5.38 among mixed-feeding women. Seventy-four percent of mothers with a lower BSES score were using mixed-feeding, while 59% of mothers with medium scores were using mixed-feeding (see table 4.37).

Table 4.37: Association between BSES scores and feeding method at 1 month

	Exclusive breastfeeding		Mixed-feeding		Exclusive formula		Total	
	N	%	N	%	N	%	N	%
High BSES scores (70- 56 scores)	2	50	1	25	1	25	4	100
Medium BSES scores (55- 42 scores)	23	34.8	39	59	4	6	66	100
Low BSES scores (41- 28 scors)	1	14.3	5	71.4	1	14	7	100
Total	26	33.8	45	58.4	6	7.8	77	100

Table 4.38 shows that majority of women were confident with many aspects of breastfeeding at one month, for example 83% were confident or very confident that they could “always keep wanting to breastfeed”, however 52% of women were not at all confident / not very confident to breastfeed their babies without supplementation.

Table 4.38: Response to BSES scale items

	Not at all confident %	Not very confident %	Sometimes confident %	Confident %	Very confident %
I can always determine that my baby is getting enough milk	0	23.9	31	32.4	12.7
I can always successfully cope with breastfeeding like I have with other challenging tasks	1.4	14.1	18.3	46.5	19.7
I can always breastfeed my baby without using formula as a supplement	2.8	49.3	11.3	22.5	14.1
I can always ensure that my baby is properly latched on for the whole feeding	0	1.4	14.1	69	15.5
I can always manage the breastfeeding situation to my satisfaction	0	15.5	28.2	43.7	9.9
I can always manage to breastfeed even if my baby is crying	0	11.3	23.9	52.1	11.3
I can always keep wanting to breastfeed	0	9.9	5.6	67.6	15.5
I can always comfortably breastfeed with my family members present	2.8	36.6	23.5	32.4	4.2
I can always be satisfied with my breastfeeding experience	1.4	11.3	5.6	60.6	21.1
I can always deal with the fact that breastfeeding can be time consuming	10.4	46.5	11.3	33.8	5.6
I can always finish feeding my baby on one breast before switching to the other breast	0	11.3	21.1	60.6	7
I can always continue to breastfeed my baby for every feeding	0	19.7	15.5	62	2.8
I can always manage to keep up with my baby's breastfeeding demands	0	14.1	15.5	56.3	14.1
I can always tell when my baby is finished breastfeeding	1.4	19.7	23.9	50.7	4.2

Twenty percent of women were not at all confident / not very confident to continue breastfeeding for every feed. In addition, 21% of women were not at all confident / not very confident to be able to know when their babies finished breastfeeding. Thirty- nine percent of women were not at all confident / not very confident in breastfeeding with the presence of family members, and 56.9% of women were not very confident about breastfeeding being time consuming and 11.3% being able to manage breastfeeding when baby is crying.

Women's baseline attitudes regarding breastfeeding as measured with the IIFAS (see table 4.19) were found to be associated with breastfeeding methods used at 1 month postpartum (p= 0.016). The attitudes scores were M= 34.7± 3.2 among exclusive or full breastfeeding mothers, 31.7± 3.7 among mixed-feeding mothers and 33.3± 4.0 among exclusive formula feeding mothers at 1 month postpartum. Fifty percent of mothers with high scores are using mixed-feeding and 37.5% were using exclusive or full breastfeeding at 1 month postpartum. Seventy-five percent of mothers with medium scores were using mixed-feeding and 26.3% were using exclusive or full breastfeeding.

4.2.7. Logistic regression

The logistic regression tested the following variables as a predictor for breastfeeding practice: ethnicity, BSES, attitudes, intentions, support, hospital, age, education, occupation, parity, delivery mode, and family income.

The Egyptian ethnicity was excluded in the model of the logistic regression because all the Egyptian women in the study sample were fully breastfeeding at

one month. The forward stepwise logistic regression analysis was employed to predict the probability of factors that can make women more likely to exclusively or predominantly breastfeed. The model gave us an overall success rate of 86% with model coefficient $p< 0.0001$. The table below shows logistic regression, coefficient, odds ratio, and Wald test. Employing a 0.05 criterion of statistical significance revealed that the baseline BSES ($p= 0.001$) is the only significant predictor of feeding outcomes (see table 4.39). The odds ratio for BSES indicates that when holding all other variables constant every increase in one score of BSES score means that women will be 1.3 times more likely to be exclusively, fully, or predominantly breastfeeding rather than mixed feeding.

Table 4.39: Forward stepwise logistic regression

	B	Wald X^2	*P*	Odds Ratio
Predictors				
Baseline BSES	0.296	11.176	0.001	1.345
Constant	-16.006	12.277	0.000	0.000

CHAPTER 5**: DISCUSSION**

In this survey of 102 women from two private hospitals in Jeddah, all women initiated breastfeeding, however, at one month postpartum, mixed feeding was the most popular feeding method (58%), which is similar to what other Saudi studies have found (Al-Othman et al., 2002; Al-Jassir et al., 2003; Ogbeide et al., 2004; Al-Jassir et al., 2006; Al-Hreashy et al., 2008; Mouzan et al., 2009; Al-Madani et al., 2010; Al-Welaie et al., 2010; Al-Yousif et al., 2011). At one month, nine percent of babies were exclusively breastfeeding, 18% fully breastfed, seven percent were predominantly breastfed, and seven percent were exclusively formula feeding.

Exclusive breastfeeding was defined by the WHO as: “No other food or drink, not even water, except breast milk (including milk expressed or from a wet nurse) for 6 months of life, but allows the infant to receive ORS, drops and syrups (vitamins, minerals and medicines)” (WHO, 2014a). All infants born in the non-BFHI hospital were introduced to infant formula as part of the hospital policy. Therefore, none of the infants born in this hospital could be categorised as exclusive breastfeeding, and instead were categorised as fully breastfeeding. At 1 month, the infants classified as fully breastfed had formula in the hospital, but had at most one other bottle of non-breast-milk after leaving hospital. Therefore, in this discussion those exclusively and fully breastfeeding will be discussed together.

5.1. Sample characteristics and relationship to breastfeeding

Most women in this study were Saudi (64%), were housewives (74.5%), multiparous (70%), non-smokers (93.5%), graduated from university (61.8%), and delivered via caesarean section (57%). National statistics reported that less than 15% of the workforce in Saudi Arabia is occupied by Saudi women (AlMunajjed, M. 2010). It was also reported that in 2006, 57% of Bachelor graduated students were women (SAMA, 2008). Other studies in Jeddah, Saudi Arabia by Fida and Al-Aama (2003) and Shawky and Abalkhail (2003) included 21% of university graduated women (Fida & Al-Aama, 2003), 39.5% illiterate women and 88% housewives (Shawky & Abalkhail, 2003). The difference between this study and previous studies could be due to two reasons; firstly, the previous studies were done in public hospitals, which may include lower socioeconomic groups, secondly, these studies were carried out 10 years ago and there have been changes in Saudi society. A more recent study, which also was done in a private hospital in Jeddah, Saudi Arabia (Mosalli et al, 2012) reported fewer multiparous (54%), graduated (24%), and caesarean delivery (31%) women compared with current study. However, Mosalli et al. (2012) reported similar percentages of housewives (78%) and non-smokers (93.3%), and similar age group distribution. The sample of the current study appears to be not representative of the Saudi community or private hospitals attendants as there were differences in some aspects between the two private hospitals included in this study e.g. ethnicity, as more Egyptian

delivered at non-BFHI hospital and more Saudi women at BFHI hospital. Thus, the results of this study cannot be broadly generalised.

There is contradictory evidence about the association between mother's age and feeding outcomes. In this study, no relationship was found between mothers' age and feeding method at one month, which aligns with Shawky and Abalkhail (2003) but disagrees with studies that have been done by Al-Kordy et al. (1992) Al-Madani et al. (2010) and Murshid (2006) who found younger women were more likely to breastfeed. This is could be due to different populations, as Al-Kordy et al. (1992) conducted their study in rural areas of Saudi Arabia. In addition, differences could be due to regional differences, as Murshid's (2006) study was a nationwide study that included participants from five different regions of Saudi Arabia. Murshid (2006) reported that women from the western regions were more likely to exclusively breastfeed, whereas women from the south-western region were the least likely to be exclusively breastfeeding. Murshid (2006) reported that different regions have different life-style and habits which may affect feeding preferences.

In this study, mother's education and feeding method at one month were not found to be associated. However a negative association of education with breastfeeding was reported by Al-Kordy et al., (1992); Al-Jassir et al. (2004); Al-Jassir et al. (2006); Murshid (2006); Al-Madani et al. (2010) and Mossali et al. (2012). This contrasted with global studies (Callen & Pinelli, 2004; Di Napoli et al., 2006; Li et al., 2008), which found that education level was positively associated with breastfeeding initiation and duration. In Saudi studies,

educated mothers were less likely to breastfeed their infants and introduced formula earlier (Al-Ayed & Qureshi, 1998; Fida & Al-Aama, 2003). In the current study the rate of undergraduate women who had a Bachelor degree was 61%, which is higher than previous studies of breastfeeding, where undergraduate educated women represented between 17.3% and 38.5% (Al-Jassir et al., 2006; Murshid, 2006; Al-Madani et al., 2010; Mossali et al., 2012). Even though a high percentage of women in this study were educated, employed women only counted for 13.7%. However, in other studies, the percentage of women who were educated and employed were similar, which may imply that there was a correlation between women having a degree and being employed, whereas in the current study there was no correlation between education level and occupation (p= 0.360). Possibly the apparent correlation between the education and low breastfeeding rates may be partly due to employment.

Moreover, in the current study no association was found between women's occupation and feeding method used at one month, which contrasted with findings of a review by Al-Jassir et al. (2004), and studies by Murshid (2006) and Al-Madani et al. (2010) which found that occupation was negatively associated with the duration and patterns of breastfeeding. Housewives were more likely to exclusively breastfeed and to breastfeed for longer duration than employed women (Murshid, 2006; Al-Madani et al., 2010). The absence of a relationship between mother's occupation and feeding method at 1 month in this study could be due to the limited time for follow-up, as women only were followed at 1 month postpartum and most of them were still on maternity leave

as the Ministry of Civil Service (MCS) in Saudi Arabia stipulated maternity leave for 60 days with full payment. Also, MCS offers another form of leave, called "new-born care leave" that can be granted to working women for up to three years with quarter of the payment (Ministry of Civil Services, 2011).

In the current study, nationality was found to be associated with feeding method. Egyptian mothers were 100% fully breastfeeding at 1 month compared with only 13% of Saudi mothers. Al-Jassir et al. (2006) found that Saudi women were more likely than non-Saudi women to use formula, but Al-Yousif et al. (2011) found the opposite. Further investigation is needed to find out what is motivating Egyptian women to exclusively or fully breastfeed and determine if it could be used to encourage Saudi women.

The Saudi MOH has encouraged mothers to exclusively breastfeed via launching the initiative to ban advertising of infant formula in 2008. This also prohibits hospitals and clinics from giving free formula to mothers (Huda, 2008). In this study, mixed feeding was the most common feeding method mothers used at one month postpartum (58%). Previous regional studies done in Riyadh by Al-Jassir et al. (2004) and Al-Ayed and Qureshi, (1998) reported 77.2% and 61.8% mixed feeding at one month postpartum respectively. Moreover, a nationwide study by Mouzan et al. (2009) reported 51% mixed fed at one month postpartum. It is possible that the ban of advertising formula initiative may have had an effect on feeding outcomes as studies conducted after 2008 showed lower percentages of mixed feeding.

Saudi studies reported insufficient milk supply as the most common reason for introducing formula (30%-65%) (Al-Kordy et al., 1992; Al-Shehri et al., 1995; Al-Ayed & Qureshi, 1998; Fida & Al-Aama, 2003; Al-Jassir et al., 2004; Al-Jassir et al., 2006; Batterjee, 2009; Mouzan et al., 2009; Al-Madani et al., 2010; Al-Welaie et al., 2010; Mosalli et al., 2012) while only 25% in this study reported insufficient milk as the reason to introduce formula. Overall, maternal fatigue (34%) and hospital policy (34%) were the most frequent reason for introducing formula in this study.

In this study women who delivered in the non-BFHI hospital, hospital policy to give formula (50%), and maternal fatigue (21%) were the common reasons reported by women for giving formula first. However, mothers delivering at the BFHI hospital, where the policy is to not provide formula, women reported insufficient milk supply (47%) as the most common reason for introducing formula in addition to breastfeeding, which in terms of commonality agree with Al-Ayed and Qureshi, (1998) and Al-Hreashy et al. (2008). This suggests that women need more information about milk supply, in particular reasons and factors affecting milk supply and how to increase it.

Sixty one percent of women in this study had problems initiating breastfeeding; practical problems including sucking (32%), latching on (21%), and positioning (13%) were the most common problems reported in both hospitals. In this study no association was found between having problems initiating breastfeeding and feeding outcomes at one month postpartum (p= 0.363). No Saudi studies were found to investigate positioning or latching on problems. The only data found

was about breast problems (Al-Kordy et al., 1992; Mouzan et al., 2009), such as breast abscess, and cracked nipples (1.8%) (Al-Shehri et al., 1995; Fida & Al-Aama, 2003), and breast infection (3%) (Al- Madani et al., 2010). Findings from study by Taveras et al., (2004) suggested that having problems with latching-on and sucking is associated with discontinuing exclusive breastfeeding.

In this study, almost half of the women (47%) were planning to continue breastfeeding until two years which is similar to what Al-Amoud. (2003) found (55.1%). Two years, is the Quran and Hadith recommendation in addition to the WHO optimal breastfeeding period (Al-Jassir, 2006, WHO, 2001).

5.2. Theory of planned behaviour (TPB)

The Theory of Planned Behaviour (TPB) was used as the theoretical frame work for this study.

5.2.1. Breastfeeding Self-Efficacy Scale (BSES)

Self-efficacy as measured by the Breastfeeding Self-Efficacy Scale Short Form (BSES-SF) had the strongest relationship to women's breastfeeding practice at one month postpartum of any of the variables and was the only variable that was significant in a multivariate model. The BSES-SF was developed by Dennis et al. (2006). The scale measures women's confidence regarding her ability to breastfeed. A study in China by Dai et al. (2003) found that women who were exclusively breastfeeding at one month had higher BSES scores as measured at birth compared with others who mixed feed or exclusively formula fed, which is in agreement with what was found in this study (M=50.0± SD 4.3)

among exclusively breastfeeding women and (M=46.4± SD 5.3) among mixed feeding women. Forty-seven percent of women in this study were not at all confident/ not very confident with breastfeeding without supplementation which helps explain the why majority of women were mixed feeding.

In this study no association was found between parity and baseline BSES (*p*= 0.272) which is unlike studies in Spain (Molina et al., 2003), Japan (Otsuka et al., 2008), and Turkey (Tokat et al, 2010) which found that multiparous women had higher BSES scores than primiparous women.

The baseline BSES scores were not different between the BFHI two hospitals (47.44± 5.1, 48.0± 5.44, *p*= 0.893). A relationship between BSES and women's ethnicity was found (*p*= 0.055). Egyptian women had high scores and were exclusively or fully breastfeeding at one month.

In this study, 24% of women reported that they were not very confident about producing enough milk, and 52% were not very confident about breastfeeding without supplementation with formula. Although some women only breastfeeding for one or two days, they reported that they do not have enough milk supply as a reason for introducing formula or stop breastfeeding later. Giving information about milk supply and production, along with support may help women continue to breastfeed; a women's belief that she can not produce enough milk can impact on actual milk production and change perceived insufficient milk production into real insufficient milk production (Beasley et al., 1998).

5.2.2. Attitudes and knowledge

Attitudes as measured by a modified Iowa Infant Feeding Attitudes Scale (IIFAS) were found to be positively associated with breastfeeding practice at one month. But in multivariate analysis, it did not explain more of the variance in feeding practice once self-efficacy taken into account. A positive correlation was found between BSES and attitudes scale r= 0.291 (p= <0.01). There was no difference in the attitude score between women from the BFHI and non-BFHI hospitals (p= 0.413). In general the women had a high breastfeeding attitude for most aspects except relating to feeding in public.

Approximately half the women in this study and Al- Madani et al. (2010) believed that women should not breastfeed in public places such as restaurants and shopping malls, and formula feeding being the better choice for a mother if she is working or needing to go out, similar to what was found by Al-Madani et al. (2010). These two questions were the only ones in this study for which the majority of women showed a negative attitude, and the results from Al-Madani et al. (2010) suggest they may be common among Saudi women.

The majority of women in this study agreed and strongly agreed that breastfeeding is more convenient than formula feeding (88.3%), and breastfed baby is healthier than formula-fed baby (87.3%) which is similar to what was reported by Al- Madani et al. (2010) with 95% agreeing with both questions. Furthermore, the majority of women in this study (90.4%) and in the study by Al-Welaie et al. (2010) (86.6%) disagreed and strongly disagreed that formula is as healthy for infants as breast milk. Again women in this study showed high

positive attitudes by disagreeing and strongly disagreeing that the benefits of breast milk last only as long as the baby is breast fed which was double the percentage of women who disagreed with this statement in the study by Al-Madani et al. (2010). Though women knew about the benefits of breastfeeding, but it was not enough for them to breastfeed exclusively and they majority were mixed feeding at one month postpartum. It is possible that they considered the benefit of breastfeeding to be similar whether exclusive or partial, or also possible that while they agreed with benefits of breastfeeding they did not see formula as a 'risk'. Several authors have mentioned about the language used with mothers during breastfeeding education or support (Wiessinger, 1996; Wolf, 2003; Stuebe, 2009; Burns et al., 2012). They suggest that using information about benefits of breastfeeding or that "breast is the best" makes formula the second best choice to feed infants, which it is not. And, they suggested that using the term "risks of formula" will help mother better understand that breastfeeding is the norm and formula contributes many risks in the short and long term for both mothers and infants. However, one study in the USA tested this theory and found there was no difference in the breastfeeding outcomes between giving information about benefits of breastfeeding or risks of formula (Ebert Wallace, & Taylor, 2011). None the less, this theory may be worth testing among Saudi women, as a different culture may have a different response.

Women in this study have used the internet (25%), books (22%) and health professionals (20%) as their main sources of breastfeeding information during

pregnancy, followed by information from mothers (14%). In another Saudi study, women were mostly getting information on breastfeeding from health professionals (44.9%) compared with (26%) relatives or from media (Al-Jassir et al., 2006). Previous studies conducted 10 years ago reported family or relatives as main sources of breastfeeding information (Al-Kordy et al., 1992; Al-Shehri et al., 1995; Fida & Al-Aama, 2003). Therefore, sources of information mothers used was changed from family and relative to internet, books, and professional.

The WHO and the Saudi MOH recommendations are to breastfeed on demand. In this study, scheduled breastfeeding (every 2 or 3 hours) was the most common (53%) technique women used to know when to breastfeed their infants. This was recommended by the breastfeeding educator at the BFHI hospital for the first weeks of breastfeeding, which is not consistent with the ten steps for successful breastfeeding of BFHI. Thirty-two percent of women considered baby crying as the sign to feed, and 19% of women chose breastfeeding on demand compared with 64.6% of women in Al-Welaie et al. (2010) who feed on demand as a method for feeding.

In general, results of the attitude scale in the current study showed that women have a good attitude toward breastfeeding, except for feeding in public.

5.2.3. Subjective norms: support and discouragement

Perceived social pressure to breastfeed or not was hypothesised in Batterjee, (2009) to be an important influence on infant feeding practice. In this study,

social pressure was measured by perception of support, either emotional, practical or with information.

Around three-quarters of women in this study (74%) reported breastfeeding education and support during hospitalization compared to about half (54.2%) of the women in the Al-Welaie et al. (2010) study who reported receiving postpartum breastfeeding education. In this study, the majority of women (61.3%) who received breastfeeding education and support delivered in a BFHI, as their policy is to provide women with breastfeeding information and practical support. However, non-BFHI hospital policy was only to provide primiparous women with some breastfeeding information and practical support.

An international study reported the importance of social support affecting maternal self-efficacy, and reported that social support, especially for first-time mothers, is required and associated with increasing their self-efficacy and consequently extending breastfeeding duration (Leahy-Warren et al., 2012).

In this study, at one month 75% of all women were getting support with breastfeeding and only 31% of this support was received from professionals. Most women in this study did not report receiving negative comments regarding their breastfeeding. Only 5% of women reported receiving negative comments at one month interview; however, none of them were affected at that time and did not change their feeding practices at one month. However, this might be changed over time as this study only followed at 1 month postpartum. A study conducted by Fida and Al-Aama (2003) reported that 17.2% of women in her

study were discouraged from breastfeeding and the same percentage of women were using bottle feeding.

5.2.4. Intentions

In the Theory of Planned Behaviour (TPB) intentions are predictors of behaviours.

In this study 47% of women planned to continue any breastfeeding up to two years, and 20% planned to stop breastfeeding at one year.

Mothers feeding intentions for one month is associated with their real feeding practice (p= 0.036) at one month. Similarly, Al-Madani et al. (2010) found that there was an association between mother's feeding intention and the real practice at four months postpartum.

An association between parity and feeding intentions at 6 months postpartum was found; primiparous women were more likely to intend to use exclusive formula feeding (p= 0.052).

An association was also found between feeding practice used with previous babies and feeding intentions for the new baby (p= 0.002), which agrees with DiGirolamo et al. (2005) who reported that women who breastfed her previous child were more likely to breastfeed her new child, but disagrees with an older study by Hill et al. (1997). Interestingly, no association was found between feeding practice used at hospital between previous baby and new baby born (p= 0.106). This is could be due to the effects of hospital as BFHI was a main determinant of how women fed their infants during hospitalization.

In this study, 43% of women planned to introduce solids before the WHO recommended age of six months, and 47% of women planned to introduce solids to their infants at six months of age. In other Saudi studies it was reported that the majority of women introduced solids earlier than six months (Al-Shehri et al. 1995; Shawky & Abalkhail, 2003; Al-Hreashy et al., 2008; Mouzan et al., 2009).

In this study 50% of women planned to stop breastfeeding before two years. Self-weaning factors, which included baby having teeth and starting to bite, and baby is old enough, were the most frequent reasons why women planned to stop breastfeeding before two years (41%), which agrees with a study done in Australia by Li et al. (2008) where 31% of mothers reported baby started to bite and 28% stating baby is old enough as reasons for stopping breastfeeding at ≥ 9 months. The second frequent reason was nutritional factors (23.5%), which included breastfeeding does not satisfy baby, and baby refuses food if continuing to breastfeed longer than a year, and not having enough milk supply. Increasing women's self-efficacy about their milk production may help produces enough breast milk, in addition to providing information on how to judge if breast milk is sufficient during hospitalisation, may help women to feed exclusively

5.3. Baby Friendly Hospital Initiative (BFHI)

The Baby Friendly Hospital Initiative (BFHI) was launched in 1991 by the WHO (WHO, 2009) and includes 10 steps for successful breastfeeding. The BFHI has proven its effectiveness in increase breastfeeding initiation, duration and exclusivity in studies done globally USA (Philipp et al., 2001; Merewood et al.,

2005), Scotland (Broad foot et al., 2007), Brazile (Braun et al., 2003; Venancio et al., 2012), and Italy (Cattaneo & Buzzetti. 2001). One of the hospitals in this study has adopted the policies of a BFHI (although not currently accredited), while the other is not a BFHI.

The WHO and BFHI recommends initiation of breastfeeding within the first hour postpartum (WHO, 1991). In this study, 23% of women initiated breastfeeding within the first hour post-delivery (21% from the BFHI hospital and 2% from the non-BFHI hospital) which is more than reported in the eastern region of Saudi Arabia, 11.4% (El-Gilany et al., 2012), and 11.2% (Amin et al., 2011), but the same as what was reported in a nationwide study (23.2%) (Mouzan et al., 2009). In the current study, 25% of women initiated breastfeeding within first two hours of delivery.

It is clear that even though BFHI is encouraging early initiation within the first hour, the percentage of women who have initiated breastfeeding during this time is still low.

In this study, the BFHI had a great effect in giving breast-milk as the first nutritive substance to new-born infants and promoting exclusive breastfeeding while in hospital compared with the non-BFHI. Seventy-seven percent of the infants in the BFHI hospitalwere first given breast milk, and 96% of mothers in non-BFHI first gave infants formula.

However after 1 month, the effect of BFHI on feeding practice was not evident and the rate of mixed feeding and exclusive breastfeeding was similar in both hospitals 61% BFHI vs. 56% non-BFHI).

The BFHI hospital did not provide free formula to women and if women were determined to use formula, they had to sign a paper that it was her choice to introduce formula first, and then buy formula from the hospital. On the other hand, the policy at the non-BFHI hospital was to give free formula, and to use formula for feeding new-born infants. Hospital policy was given as a reason for introducing formula as the first food by 50% of women at the non-BFHI hospital. However, even though the BFHI policy is to give breastfeeding first, 23% of women who gave birth in the BFHI introduced their infants to formula first.

The BFHI hospital policy is to provide one private prenatal breastfeeding education session along with, practical support during hospitalisation, an information booklet about breastfeeding including the importance, benefits, problem and solutions, and one postnatal session (after discharge) at hospital; however, very few women attended both sessions. A review by Hannula et al's. (2008) found that support at the hospital and acompanied with postnatal home visits were more effective in increasing the duartion of any breastfeeding at 6 months compared with hospital-based education/support alone. However, sociocultural factors such as being a conservative society makes home visits a limited choice for supporting Saudi women (Baldo et al., 2000). Perhaps joining up the obstetrics and gynaecology clinic with the breastfeeding education clinic together and make it one clinic will help in increase number of attendance at breastfeeding session at BFHI hospital.

5.4. Strengths and limitations

5.4.1. Limitations

The main limitation was sampling private hospitals does not allow inference to the general population, and only two hospitals (1 BFHI) does not allow to generalisation about effect of BFHI hospitals.

Women who dropped out at one month left a small sample size which limited the interpretation of the results and increase the risk of potential bias. This study only followed-up mother for one month as most mothers were on maternity leave, therefore the relationship between mother being employed and breastfeeding was not yet apparent. In addition, they were still in the postpartum period and most women in Saudi Arabia do not go out frequently during this period. Another limitation is this study did not use all questions from the IIFAS attitude scale, which impedes the possibility of comparing this study fully with other studies.

5.4.2. Strengths

This study is a longitudinal study design for one month, while most studies conducted in Saudi Arabia previously were cross-sectional studies. The second strength is that in this study, the investigator has used an accepted definition of each type of breastfeeding such as exclusive and fully breastfeeding.

CHAPTER 6 **: CONCLUSION**

Overall, the aim and objectives of this research study have been addressed. The biggest influence on breastfeeding practice at one month in this population of women in Jeddah Saudi Arabia attending private hospitals is self-efficacy, as measured by the Breastfeeding Self-Efficacy Scale (BSES). Regardless of all the other variables women's self-efficacy was found to be the strongest predictor of breastfeeding practice. It was found that 52% of women in this study were not at all confident/ not very confident about breastfeeding without using supplementation. This may explain why the majority of women used mixed feeding.

Infants received and had greater percent of infants within the early initiation of breastfeeding. Infants at the BFHI hospital were more likely to receive breast-milk as the first nutritive substance, and breastfeeding was more often initiated within the first hour. The BFHI hospital supported women practically and provided them with information verbally in addition to giving the breastfeeding booklet. However, the influence of the hospital was no longer apparent at one month postpartum at which point the majority of women had shifted to mixed-feeding. Furthermore, there was no relationship between the BSES and BFHI status.

Egyptian women were 100% exclusively breastfeeding at one month postpartum whereas only 12.5% of Saudi women were. Further investigation is needed to find out what is motivating Egyptian women to exclusively or fully breastfeed and determine if it could be used to encourage Saudi women.

This study supports what was found in earlier studies; that mixed feeding is the most common feeding method Saudi women used. Although Saudi women reported a good attitude to breastfeeding, a high percentage of women were mixed feeding at one month. Surprisingly, even though women from the BFHI hospital were more likely to know the WHO recommendation about exclusive breastfeeding duration than were women from the non-BFHI hospital, and more likely to intend to exclusively breastfeed at one month, mixed feeding was the most common feeding method they used at one month postpartum.

Future research may investigate how to increase mother's self-efficacy, which should result in longer exclusive breastfeeding duration. Furthermore, providing postnatal home support and a 24-hour phone line for breastfeeding support, similar to Plunket services in New Zealand, may increase breastfeeding self-efficacy especially regarding insufficient milk supply. Findings of this study indicate the majority of women understood benefits of breastfeeding, but were still mixed feeding at one month postpartum. Future research using the term 'risk' of formula, in addition to benefits of breastfeeding is another possible approach to investigate.

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APPENDICES

1. Feeding pattern in Saudi Arabia

Reference	Location & Year of data collection	Method	Outcome & strength and limitation
Al-Ayed, & Qureshi, (1998)	Riyadh (central region) NS	• Cross-sectional study to assess infant breastfeeding trends in urban population • Data was collected via interview • 347 infant attending the well-baby clinic were randomly recruited. • Sample included Saudi (79.5%) and non-Saudi (20.5%) subjects.	• All children aged > 12m were weaned. • There was no association between infant six, mode of delivery, birth weight and type of breastfeeding. • There was no significant relationship between mother's age, educational level and type of breastfeeding. • Inadequate milk supply was the common reason for introducing formula. • 32.4% were exclusive breastfeeding at 3 m, and 22.1% at 6m. • 48.4% were exclusive formula feeding at 6m. • 61.8% of mothers introduced formula at 1m. Limitation • Unclear methods • Selection bias • Small sample size • Unclear definitions of feeding patterns
Al-Hreashy et al. (2008)	Riyadh (central region) Data was collected at 6 months of infant life.	• Cross-sectional study to assess infants breastfeeding practice during first 6 months • 578 infants were included in the study. • Subjects who attended the primary care centre and well-baby clinic for the 6th month's vaccination were recruited. • Trained health professionals carried out the interview	• Mixed-feeding was the most common feeding patterns among mothers. • Inadequate milk supply was the most common reason for introducing formula. • 95% of mothers initiated breastfeeding. • 83.7% of mothers were formula feed at 6 months. • 1.7% of mothers were exclusive breastfeeding at 6 months. • 78.8% of mothers were mixed feed at 6 months. • Any breastfeeding was 50% at 6 months. Strengths • Using a specific definition of feeding pattern • Enough duration to assess exclusive breastfeeding rate but not optimal duration for breastfeeding Limitation • Subjects were not representative of Saudi population
Al-Jassir et	Riyadh	• Cross-sectional survey to assess infant feeding	• Early introduction of formula feeding.

al. (2004)	(Central region) 1999-2000	practice • Sample involved mothers of 21,507 infants aged 1-5 y. • 92.8% of subjects were Saudi. • Data collected during visits for routine vaccination • Sample included different education levels.	• Less educated mothers are more likely to breastfeed than well-educated mothers. • Working mothers are less likely to breastfeed than non-working mothers. • Breastfeeding initiation rate 98.9% • 52.7% excluding infants aged < 6 m continued to breastfeed for > 6m, 30.8% for 12 m, 18.8% for 18 m, and 3.2% for 24 m. • Mean duration of breastfeeding was 6.57± 5.17 m. • At 1 w 7.8% were using formula feed. • At 1 m 77.2% were using formula feed. • Exclusive breastfeeding rate 0.8% 4-6 m. Strengths • Large sample size which is representative of Riyadh residence • Settings were chosen randomly Limitation • Unclear definitions of feeding patterns • Unclear methods
Al-Jassir et al. (2006)	Nation-wide study included subjects from 5 different regions (central, north, south, east, and west). July 2002 to June 2003.	• Nationwide cross-sectional survey to assess feeding pattern in all over the country • Sample included total of 3922 Saudi and 889 non-Saudi subjects. • Subjects were recruited from both government and private hospitals • Mothers were interviewed via pre-tested questionnaire • Most of subjects were recruited from central (25.4%) and eastern region (25.5%).	• Saudi mothers received breastfeeding education less than non-Saudi mothers. • Educated mothers received more health education than illiterate mothers. • Saudi and educated mothers were more likely to introduce formula feeding at 3m than non-Saudi loess educated mothers. • Mixed-feeding was the most popular patterns among this sample group. • 92% of mothers initiated breastfeeding. • 76.1% of mothers were using formula feeding at 3m. Strengths • Large sample size Limitation • Unclear definitions of feeding patterns
Al-Kordy et al., (1992)	Al-Jamoom (rural western region) NS	• Cross-sectional survey to determine factors influencing the duration breastfeeding in rural area • A total of 274 mothers and 476 infants and children aged 3y or less were included. • Standard-cluster sampling technique was used • Data collected via interview by questionnaire	• There was a significant association between mother's age and timing of introducing formula feeding. • Educated mothers were less likely to breastfeed their children. At the time of the study breastfeeding patterns was; • 41 (8.6%) were exclusive breastfeed. • 175 (36.8%) were mixed feed. • 260 (54.6%) were exclusive formula feed. • Exclusive breastfeeding was (48.8% initially then dropped to 31.7% at 6m and to 19.5% at 1 y Strength • Include different population (rural area)

			Limitation • Unclear definitions of breastfeeding pattern • Unclear method
Al-Madani et al. (2010)	Al-Khobar (Eastern region) Two stages; During pregnancy and 6m follow-up	• Longitudinal study • Data collected via baseline face-to-face interview, and telephone follow-up at 6 m • 160 pregnant Saudi women in the third trimester • 73 mothers responded during 6m of follow-up (by telephone). • Average age of mothers 27.7 • Most women had level of education between primary-secondary and high school	• Most common feeding practice was mixed-feeding • Low education level was associated with more intention to breastfeed • Younger, nonworking, nulliparous, mothers were more likely to breastfeed After 6 months follow-up • Exclusive breastfeeding17 (23%) • Mixed breastfeeding38 (52%) • Formula feed18 (25%) Strengths • Strong study design Limitations • Adding questions to the IIFAS confused women, therefore gave contradicted answers • High drop rate
Al-Othman et al., (2002)	Riyadh (central region) NS	• Cross-sectional study to study mother's practices during pregnancy, lactation and care during first 2 years • Data collected via questionnaire by a trained nutrition science student • A total of 250 mothers with infant aged ≤2y were recruited from 5 different clinics. • Majority of women were housewives. • Mothers aged 18- 42 years were included.	• Half of mothers established breastfeeding during 1-8 h post-delivery. And < 1/3 breastfeed immediately post-delivery. • Literate mothers were more likely to initiate breastfeeding immediately post-delivery. • 153 (64.6%) initiated breastfeeding and only 90 (39%) were still breastfeed at time of the study. Strengths • Subject recruited randomly Limitation • Study design
Al-Shehri et al. (1995)	Nation-wide study (central, western, eastern, northern, and southern region) During 1991	• National cross-sectional survey in urban and rural areas • Mutli-satge cluster sampling technique used • A total of 6308 mothers were included in the study. • The target population was mothers who last gave birth during last 5 y. • Data was collected via interview under supervision to ensure accuracy	• Illiterate mothers were more likely to breastfeed their children than educated mothers. • The average duration of breastfeeding ranged 7-16 m. • 11 m and 13 m were the mean duration of breastfeeding in urban and rural areas respectively. • Breastfeeding initiation rate was 92.4% in urban areas, and 94.5% in rural areas. • Percentage of breastfeeding was 93% at 1st m, but declined to 78% at 6th m, and 45% at 1st y. • At ≤ 5m; 53% was exclusive breastfeed, 34% was mixed feed and 13% was exclusive formula feed. • 6-12 m; 38% was exclusive breastfeed, 29% was mixed feed and 33% was exclusive formula feed. • > 12m; 18% was exclusive breastfeed, 6% was mixed feed and 44% was exclusive formula feed.

			Strength • Including population from both urban and rural areas • Strong design Limitation • Unclear definitions of breastfeeding pattern
Al-Welaie et al. (2010).	Riyadh (Central region) 7 -22 July 2009.	• Cross-sectional study to study Saudi women attitudes and knowledge toward breastfeeding • Women recruited from postnatal ward (normal and caesarean) and out-patient clinic (only pregnant women) • 848 Saudi women aged 21-30 years. • Data collected via self-administrated questionnaire, only some women interviewed face-to-face • Most women have college or higher education. • Most women were unemployed	• Mixed-feeding was the most common pattern. • 48.5% of mothers planned to use mixed-feeding. • 36.8% of mothers planned to use exclusive breastfeeding during first few weeks postpartum. • 2.4% planned to use exclusive formula feeding. Strengths • Included large subject group Limitations • Potential bias by interview some women face-to-face • Include mix result of two different group of women postnatal and pregnant women • Unclear definitions of feeding patterns
Al-Yousif et al. (2011)	Al-Khobar (Eastern region) NS	• Cross-sectional study to assess women's breastfeeding knowledge, attitude and practice. • A total of 400 Saudi and non-Saudi women who having living children < 5 y were randomly selected. • Subjects recruited through vaccination from two well-baby clinic. • Data collected by an interview questionnaire • Subjects included different economic classes. • Subjects aged between 17 and 45 y.	• Mixed-feeding was the most common feeding pattern (79.5%) • Exclusive breastfeeding (19.2%) • Exclusive formula feeding (1.3%) • Positive knowledge about breastfeeding (91.8%) • Positive attitude about breastfeeding (91.5%) • Father's education & family size significantly influenced breastfeeding practice. • Positive feeding practice was significantly associated with mother's nationality, age, and family size. Limitations • Weak study design • Small number of women who bottle fed their infant that cannot allow valid statistical analysis.

El-Gilany. (2010)	Al- Hassa (Eastern region) June and July 2008	• Prospective study to describe the pattern and predictors of infant feeding. • Subject recruited and followed-up through the vaccination sessions. • Infants were followed up during the first year of life at 2m, 4m, 6m, and 12m. • 2000 infants at the age of 2m, this number reduced to 1947 infants at 4m, 1904 infants at 6m, and 1863 at 12m. • Data was collected via interviews	• Mixed-feeding was the most popular pattern. • Women from rural areas, housewives and those with lower education are more likely to breastfeed. • Exclusive breastfeeding 1279 (64%) at 2m, and dropped to 263 (14.1%) at 1y. • Formula feeding 108 (5.4) at 2m and rose to 516 (27.7%) at 1y. • Mixed-feeding 613 (30.7%) at 2m and rose to 1084 (58.2%) at 1y. Strengths • Good study design allowed infants to be followed Limitations • Unclear feeding definitions
Fida, & Al-Aama, (2003)	Jeddah (western region) October 2001-September 2002	• Prospective interview with mothers of 128 infants aged ≤ 12 m included in the study. • Data was collected via self-administrated questionnaire • Women aged 16-40 were recruited. • Infant recruited through routine visits for vaccinations.	• Early discharge from hospital was significantly associated with successful breastfeeding. • No relationship was found between breastfeeding and education, • Breastfeeding rates were 90% during first 6m. • 106 (82.8%) were breastfeed. • 22 (17.2%) were using formula feed. Limitation • Small sample size • Unclear definitions of feeding patterns
Mouzan et al., (2009)	Nation-wide national survey 2004-2005	• Cross-sectional nationwide survey • 5339 mothers who have children aged less than 3y were included • Data was collected via questionnaire. • Data were collected via house-to-house visits in most cases unless was not practical for families	• Early introduction of formula feeding was noticed in this survey. • There is high initiation rate of breastfeeding but with dramatic decline afterwards. • 4889 (91.6%) mothers initiated breastfeeding, and 450 (8.4%) never breastfed. • 1134 (23.2%) initiated breastfeeding during 1st hour postpartum, and 1373 (28.1%) were delayed beyond 6h. • 3781 (88.6%) were breastfed at birth and this rate dropped to 76 (1.8%) at 1y. • Introduction of formula feeding 485 (11.4%) at birth, 2174 (51.0%) at 1m, and 4190 (98.2%) at 1y. Strengths • Include subjects from different regions of Saudi Arabia Limitation • Unclear definitions of feeding patterns
Murshid (2006)	Nation-wide survey included five regions (central, western, eastern, south-	• Cross-sectional survey to determine the infant feeding patterns in 5 different regions • 912 infants aged <2y were randomly recruited from well-baby care clinic during 3m. • Subjects recruited from five different regions of	• Low education level and nonemployee was associated with more intention to breastfeed. • Married women were significantly more likely to use formula feeding than divorced mothers. • Formula feeding was the most common practice in this study.

	western, northern) Data collection took 3 m.	Saudi Arabia. • Data was collected via self-administrated questionnaire	• Exclusive breastfeeding; 201 (22%). • Formula feeding; 440 (48%) • Mixed-feeding; 271 (29.7%) • Mothers from western region were more likely to breastfeed (28.4%) and mothers from south-western region were the less likely to breastfeed (13.4%). • Formula feeding was more among mothers from central region (43%) and less among mothers from western and eastern regions (13.4%). • Rate of mixed-feeding was higher in central region (33.6%) and lower in eastern region (12.5%). Strengths • Recruit subjects from different regions of Saudi Arabia Limitation • Unclear definitions of feeding patterns
Shawky, & Abalkhail, (2003)	Jeddah (western region) March- June 1997	• Cross-sectional survey to find about the trend and barriers for breastfeeding • 400 mothers with infant ≤ 12m were included. • Study included Saudi (66.8%) and non-Saudi (33.3) mothers. • Data was collected via face-to-face interview by a trained medical student • Most women were housewives • Most subjects were from medium and low social classes. • 39.5% of mothers were illiterate.	• Risk factors associated with stop breastfeeding were C-section delivery and usage of oral contraceptive. • No significant relationship between breastfeeding and either age, or parity. • 376 (94%) initiated breastfeeding at birth. • 371 (92.8%) continued breastfeeding at 1 m. • Only 160 (40%) breastfeed at 1y. • 6m was the median duration of breastfeeding. Limitation • Unclear definitions of feeding patterns

2. English version of baseline questionnaire

How do you plan to feed your baby?

(Baseline questionnaire)

Please complete registration information including:

- ✓Contact details
- ✓Questionnaire
- ✓Demographic characteristics

If you have questions at any time about the survey or the procedures, you may contact Anwaar Shahbar at **009669967776** or by email at the email address Anwaar.sh@hotmail.com.

Thank you

Contact details

Today's date / /

Name

……

……

Telephone Numbers

Home …….

Cell……..

Relative/friend (where you may stay after the baby birth)

……

……

E- Mail address ……

Delivery date ……

Baby's gender: male / female **Baby's name** ……..

This questionnaire consists of two sections:

- ✓ **If this is your first baby please answer section <u>one only</u>**
- ✓ **If you had children before please answer section <u>one</u> AND <u>two</u>**

Section one

In this section I would like to know about your delivery mode, how did you feed your baby at birth and what is your planning for feeding you baby in coming months. Adding to that, I would like to know about your opinion regarding some facts about breastfeeding please.

1- Did you give birth through:

- ○ Normal delivery
- ○ Caesarean section

2- Did you or your baby have any complications that lead to separating you from your baby after delivery e.g. baby in neonatal and what was it?

- ○ Yes
- ○ No

What was

……

3- What was the first thing the baby had through mouth?

- ○ Breast milk
- ○ Formula
- ○ Water
- ○ Herbs
- ○ Others

……

a) If breast milk, when first received? (hours)

……

i. Has the baby had any formula in addition to breast milk?

- ○ No
- ○ Yes,

why……

……

b) If formula;

i. Why?

……
……

ii. When did the baby first receive breast milk?

.....

4- Did you have any problems with initiating breastfeeding?

- ○ Yes, if yes please mention
- ○ No

What

……
….
……
……

5- Have you had any help or support with breastfeeding? If yes, from who and how?

- ○ Yes
- ○ No

a) From who? Please tick as much as applicable.

- ○ Nurse
- ○ Lactation consultant
- ○ Doctor
- ○ Mother
- ○ Mother in law
- ○ Friend
- ○ Husband
- ○ Others, please mention…….

b) How have they helped you?

……
……
……

6- Have you received any free formula, and from who?

- ○ Yes

○ No

Who

……
…..

7- How are you feeding your baby now?

Exclusive breastfeeding	Predominant breastfeeding	Mixed-feeding	Exclusive formula feeding

8- Has the baby had any bottle?

- ○ No
- ○ Yes, 1 bottle
- ○ Yes, 2-3 bottles
- ○ Yes, bottle for every feed
- ○ Do not know

9- What was in the bottle?

- ○ No bottle
- ○ Water
- ○ Formula
- ○ Herbs
- ○ Expressed breast milk
- ○ Combination of above

10- I would like to know what milk and other liquids you plan to feed your baby during his/her first year?

Note:

Exclusive breastfeeding is that Infants feeding with only breast milk.

Predominant breastfeeding is that infants feeding with breast milk, water or herbs but no formula.

Mixed-feeding is that Infants feeding with breast milk plus formula.

Exclusive formula feeding is that infants receive no breast milk and only formula.

	Exclusive breastfeeding	Predominant breastfeeding	Mixed-feeding	Exclusive formula feeding	Add solids

1 week postpartum	○	○	○	○	○
1 month postpartum	○	○	○	○	○
3 months postpartum	○	○	○	○	○
6 month postpartum	○	○	○	○	○
12 months postpartum	○	○	○	○	○

11- Do you have any plans to change the way you are feeding your baby in the next month? Why?

……
……
……

12- When are you planning to introduce solids?

……..

13- When are you planning to stop breastfeeding your baby? And why?

……
……

14- How do you know when to feed your baby?

……
……

15- What should you do to make sure your baby gets enough milk?

……
……

16- What factors are important to you when decide to breastfeed or formula feed your baby?

……
……

17- If you get a negative comment about your breastfeeding, would you stop?

- ○ Yes
- ○ No
- ○ Not sure

18- Have you had any information about breastfeeding during pregnancy? If yes from where?

- ○ Yes

- ○ No

From where? Please tick as much as applicable.

- ○ Website
- ○ Book/magazine/ newspaper
- ○ Doctor
- ○ Lactation consultant
- ○ TV
- ○ Radio
- ○ Mother/mother in law
- ○ Friends
- ○ Others, please mention

  ……
  ……
  ……

19- Which source was the most helpful? And what advice they gave you?

……
……
……

What.

……
……
……

20- **What information did you want to get during pregnancy?** Please tick as much as applicable

- ○ Nutritional information
- ○ Practical demonstration of breastfeeding
- ○ Health information
- ○ None
- ○ Others, please mention

  ……

21- How long are mothers recommended to exclusive breastfeed their babies based on the World Health Organisation? (please tick one only)

Note: Exclusive breastfeeding is that Infants feeding with only breast milk

- ○ 3 months
- ○ 6 months
- ○ 1 year
- ○ 2 years

22- Did anyone show you practically how to breastfeed your baby at hospital?

- ○ Yes
- ○ No

23- For each of the following statements, please choose the answer that best describes how confident you are with breastfeeding your new baby. Please mark your answer by circling the number that is closest to how you feel. There is no right or wrong answer.

	Not at all confident	Not very confident	Sometimes confident	Confident	Very confident
I can always determine that my baby is getting enough milk					
I can always successfully cope with breastfeeding like I have with other challenging tasks					
I can always breastfeed my baby without using formula as a supplement					
I can always ensure that my baby is properly latched on for the whole feeding					
I can always manage the breastfeeding situation to my satisfaction					
I can always manage to breastfeed even if my baby is crying					
I can always keep wanting to breastfeed					
I can always comfortably breastfeed with my family members present					
I can always be satisfied with my breastfeeding experience					
I can always deal with the fact that breastfeeding can be time consuming					
I can always finish feeding my baby on one breast before switching to the other breast					
I can always continue to breastfeed my baby for every feeding					
I can always manage to keep up with my baby's breastfeeding demands					
I can always tell when my baby is finished breastfeeding					

24- For each of the following statements, please choose the answer that best describes how much you agree or disagree by circling the number that is closest to your opinion. There is no right or wrong answer.

SD= strongly disagree
D= disagree
N= Neutral
A= Agree
SA= Strongly Agree

	SD	**D**	**N**	**A**	**SA**
Women should not breastfeed in public places such as restaurant					
Formula feeding is the better choice if a mother plans to work outside the home					
Father feel left out if a mother breastfeed					
Breastfeeding is more convenient than formula feeding					
Formula is as healthy for an infant as breast milk					
Breastfed babies are healthier than formula fed babies					
The benefits of breast milk last only as long as the baby is breast fed					
A heavier baby is healthier					
Breastfeeding affects the maternal figures negatively					

If this is first child, is there anything else you would like to tell me about breastfeeding your baby?

Thank you for your time.

Section two

In this section I would like to know about your previous breastfeeding experience with your last child.

25- How old is your last child now?

……..

26- In which hospital have you given birth for your last child?

……
……..

27- How many children you have?

- ○ 1
- ○ 2
- ○ 3-4
- ○ 5-6
- ○ More than 6

28- Thinking back to your last child, how did you feed him/her:
Note:

Exclusive breastfeeding is that Infants feeding with only breast milk.

Predominant breastfeeding is that infants feeding with breast milk, water or herbs but no formula.

Mixed-feeding is that Infants feeding with breast milk plus formula.

Exclusive formula feeding is that infants receive no breast milk and only formula.

	Exclusive breastfeeding	**Predominant breastfeeding**	**Mixed-feeding**	**Exclusive formula feeding**	**Add solids**
At birth	○	○	○	○	○
1 week postpartum	○	○	○	○	○
1 month postpartum	○	○	○	○	○
3 months postpartum	○	○	○	○	○
6 month postpartum	○	○	○	○	○
12 months postpartum	○	○	○	○	○

29- Why did you decide to supplement or stop breastfeeding?

……
……

30- Did you have any problems with initiating breastfeeding with your last child?

- ○ Yes, if yes please mention
- ○ No

What

……
……

31- Did you have any problems while breastfeeding?

- ○ No
- ○ Yes

What……
……
……
……

32- Who gave you support while breastfeeding your last child?

- ○ No support
- ○ Doctor
- ○ Lactation consultant
- ○ Husband
- ○ Mother/mother in law
- ○ Friends
- ○ Others, please mention

33- What support was the most helpful?

……
……
……
……

Is there anything else you would like to say about breastfeeding your baby?

This is the end of the questionnaire please go to next section for some demographic information thank you for your time.

Demographic Questionnaire

Please answer by tick the circle or filling the blank:

1. **How old are you?**

……....

2. **Are you Saudi?**
   - ○ Yes
   - ○ No, Nationality……..

3. **What is your marital status?**
   - ○ Married
   - ○ Separated/ Divorced

4. **What level of education do you have?**
   - ○ Less than high school
   - ○ High school
   - ○ University
   - ○ Postgraduate

5. **What is your occupation?**
   - ○ Working full/part time
   - ○ Student
   - ○ Not working

6. **What is your family monthly income?**
   - ○ SR 2000- 5000
   - ○ SR 5000- 8000
   - ○ SR 8000- 10000
   - ○ >SR 10000

7. **What is your smoking status?**
   - ○ Non-smoker
   - ○ 1-2 per day
   - ○ 25 per week
   - ○ More than 25 per week

8. **Have you attended prenatal class? If yes when and where?**
   - ○ Yes
   - ○ No

When

……..

Where……

9. **What is the best time of day to call you for next interview?**

……..

This is the end of the survey thanks a lot for you time and cooperation, I will call you at one month postpartum to ask you about your breastfeeding practice with your new baby

3. Arabic version of baseline questionnaire

(الاستبيان الأساسي)

أرجو تعبئة معلومات التسجيل التي تشمل

- ✓ معلومات الإتصال
- ✓ الإستبيان
- ✓ البيانات الأخرى

إذا كانت لديكم استفسارات عن المسح أو الإجراء يمكنكم في أي وقت الاتصال على أنوار شحبر على الرقم 00966549976776 أو عن طريق البريد الالكتروني anwaar.sh@hotmail.com

وشكرا

تفاصيل الاتصال

تاريخ اليوم / /

الاسم: .....

رقم الهاتف والجوال:

.....

.....

القريبة/ الصديقة (التي قد تقيمين لديها بعد ولادة طفلك)

.....

.....

البريد الإلكتروني .....

تاريخ الولادة .....

اسم الطفل .....

جنس الطفل ذكر / أنثى

إن هذا الإستبيان مكون من قسمين:

- ✓ إذا كان هذا طفلك الأول الرجاء تعبئة القسم الأول فقط من الإستبيان
- ✓ إذا كان لديك أطفال من قبل الرجاء تعبئة القسم الأول و الثاني

القسم الأول

أود أن أتعرف في هذا القسم من الإستبيان على طريقة الولادة، كيف قمت بإرضاع طفلك عند الولادة، وما هي خطتك المتبعة لإرضاعه للشهور القادمة. بالإضافة إلى رغبتي في معرفة رأيك عن بعض الحقائق الخاصة بالرضاعة الطبيعية

1- هل كانت الولادة:

- ○ ولادة طبيعية
- ○ عملية قيصرية

2- هل تعرضت أنت أو طفلك لأي تعقيدات أدت لفصلك عن طفلك بعد الولادة مثلا فيما يتعلق بحالة الطفل ما بعد الولادة وماذا كانت تلك الحالة؟

- ○ نعم
- ○ لا

السبب

.....

3- ما هو أول طعام قدم للطفل بعد الولادة؟

- ○ حليب الأم
- ○ حليب صناعي
- ○ ماء
- ○ أعشاب
- ○ أخرى, الرجاء ذكرها

.....

أ- إذا كان ذلك حليب الأم، متى كان تقديمه للطفل لأول مرة؟

.....

1- هل تم إعطاء الطفل حليب صناعي بالإضافة الى حليب الأم؟

- ○ لا
- ○ نعم, لماذا

.....

ب- إذا كان حليب صناعي

1- لماذا؟

.....

.....

2- متى بدأ الطفل الرضاعة طبيعيا لأول مرة؟

……

……

4- هل واجهت أي مشاكل في بداية ارضاع طفلك؟

- ○ لا
- ○ نعم ، أرجو ذكر ذلك

……

……

……

5- هل تلقيت أي مساعدة أو دعم للرضاعة الطبيعية؟ إذا كانت الإجابة بنعم الرجاء ذكر ممن تلقيت المساعدة وكيف.

- ○ نعم
- ○ لا

أ- ممن؟ الرجاء وضع العلامة على جميع الأشخاص الذين قاموا بالمساعدة.

- ○ الممرضة
- ○ اخصائية الرضاعة
- ○ الدكتور
- ○ الأم
- ○ أم الزوج
- ○ الصديقات
- ○ الزوج
- ○ آخرون, الرجاء ذكرهم

……

ب- كيف ساعدوك؟

……

……

……

6- هل استلمت أي حليب صناعي مجاني، ومن قدمها؟

- ○ نعم
- ○ لا

الجهة التي قدمتها. ……

7- كيف تقومين بإرضاع طفلك الآن؟

رضاعة طبيعية حصرية	التغذية الغالبة	تغذية مختلطة	تغذية مقتصرة على الحليب الصناعي فقط

8- هل تلقى الطفل أي طعام في الرضاعة (القارورة)؟

- ○ لا
- ○ نعم, واحدة فقط
- ○ نعم, من 2 لـ 3 رضاعات (قوارير) في اليوم
- ○ نعم, أكثر من 3 رضاعات (قوارير) في اليوم
- ○ لا أعلم

9- ماذا تم إعطائه في الرضاعة (القارورة)؟

- ○ لم يتم إعطائه الرضاعة (القارورة)
- ○ حليب صناعي
- ○ ماء
- ○ أعشاب
- ○ حليب الأم
- ○ مزيج من الاختيارات السابقة

10- أود أن أعرف نوع الحليب والسوائل الأخرى التي تنوين الاعتماد عليها في تغذية طفلك خلال السنه الاولى من حياته ملاحظة:

الرضاعة الطبيعية الحصرية حيث يعتمد الأطفال على حليب الأم فقط

التغذية الغالبة: حيث يتم تغذية الطفل من لبن الأم والماء أو الأعشاب دون استخدام الحليب الصناعي.

التغذية المختلطة: حيث يتم تغذية الأطفال بحليب الأم بالإضافة للحليب الصناعي

التغذية المقتصرة على الحليب الصناعي فقط حيث لا يحصل الطفل على حليب الأم ويتغذى على الحليب الصناعي فقط.

	الرضاعة الطبيعية الحصرية	**التغذية الغالبة**	**التغذية المختلطة**	**التغذية المقتصرة على الحليب الصناعي فقط**	**إضافة الغذاء الصلب**
الاسبوع الاول					
الشهر الاول					
الشهر الثالث					
الشهر السادس					
السنة الأولى					

11- هل لديك أي خطط لتغيير الطريقة التي تطعمين بها طفلك خلال الشهر القادم؟ لماذا؟

……
……
……

12- متى تخططين لتقديم الغذاء الصلب لطفلك؟

……
……

13- متى تخططين التوقف عن تغذية طفلك عن طريق الرضاعة الطبيعية؟ ولماذا؟

……
……
……

14- كيف تعرفين متى تطعمين طفلك؟

……
……

15- ماذا يمكن فعله للتأكد من أن طفلك يحصل على ما يكفيه من الحليب عند إرضاعه طبيعيا؟

……
……

16- ما هي العوامل التي تكون مهمة بالنسبة لك عند اتخاذ القرار بإرضاعه طبيعيا أو صناعيا؟

……
……

17- إذا بلغك تعليق سلبي عن الرضاعة الطبيعية هل تتوقفين عنها؟

- ○ نعم
- ○ لا
- ○ غير متأكدة

18- هل تلقيتِ أي معلومات عن الرضاعة الطبيعية اثناء فترة حملك؟ إذا كانت الإجابة بنعم فممن تلقيتيها ؟

- ○ نعم
- ○ لا

ممن تلقيتي المعلومات؟ (الرجاء وضع علامة على جميع الجهات التي قدمت لكِ المساعدة)

- ○ الإنترنت
- ○ المجلات/ الصحف/ كتب
- ○ الدكتور
- ○ استشارية الرضاعة الطبيعية
- ○ التلفزيون
- ○ الراديو
- ○ الأم/ أم الزوج
- ○ الصديقات
- ○ آخرون، الرجاء ذكرهم

……

19- أي من السابقين قام بإعطائك نصائح مفيدة؟ وماهي؟

……
……
……

ماهي

.....

.....

.....

20- ماهي المعلومات التي تودين الحصول عليها خلال فترة حملك؟

- ○ معلومات غذائية
- ○ معلومات عن الرضاعة الطبيعية
- ○ معلومات صحية
- ○ لاشئ
- ○ غير ذلك, الرجاء ذكرها

.....

21- لأي مدة توصِ الأمهات بقصر تغذية أطفالهن على الرضاعة الطبيعية حسب توصيات منظمة الصحة العالمية؟ (أرجو وضع علامة واحدة فقط)

ملاحظة: الرضاعة الطبيعية الحصرية: حيث يعتمد الأطفال على حليب الأم فقط

- ○ 3 اشهر
- ○ 6 اشهر
- ○ سنة واحدة
- ○ سنتين

22- هل تم تعليمك كيفية الإرضاع من الثدي من قبل الفريق الطبي في المستشفى؟

- ○ نعم
- ○ لا

23- أرجو أن تختاري لكل من العبارات أدناه، أكثر إجابة تصف مدى ثقتك في إرضاع طفلك طبيعيا. أرجو وضع علامة في الخانة المناسبة.

	غير واثقة تماما	غير واثقة جدا	واثقة احيانا	واثقة	واثقة جدا
يمكنني دائماً التحديد بأن طفلي يحصل على ما يكفيه من الحليب					
يمكنني دائما التعامل مع الرضاعة الطبيعية بنجاح مثل تعاملي مع باقي المهام الصعبة الأخرى					
استطيع دائماً ارضاع طفلي من الثدي دون استخدام الحليب الصناعي كمكمل غذائي					
يمكنني دائما التأكد من ان طفلي ملحق بالحلمة بصورة صحيحة خلال إرضاعه					
استطيع دائما ان اجعل الرضاعة الطبيعية ممتعة					
يمكنني دائماً أن أقوم بالرضاعة الطبيعية حتى ولو كان طفلي يبكي					
يمكنني دائماً الحفاظ على الرغبة في الرضاعة الطبيعية					
استطيع دائماً القيام بالرضاعة الطبيعية بشكل مريح في حضور افراد عائلتي					
استطيع دائماً ان أكون راضية عن تجربتي مع الرضاعة الطبيعية					
يمكنني دائماً التعامل مع حقيقة أن الرضاعة الطبيعية استهلاك للوقت					
يمكنني دائماً أن انتهي من ارضاع طفلي من الثدي الاول قبل ان ينتقل الى الثدي الآخر					
يمكنني دائماً أن استمر في إرضاع طفلي في كل رضعة					

استطيع دائما التعامل مع متطلبات طفلي من الرضاعة الطبيعية					
استطيع دائما تحديد وقت انتهاء طفلي من الرضاعة					

24- أرجو أن تختاري لكل من العبارات أدناه أكثر إجابة تعبر عن رأيك بوضع علامة في الخانة الأقرب للتعبير عما تشعرين به.

	أوافق تماما	أوافق	محايدة	لا أوافق	لا أو فق بشكل قاطع
يجب على النساء عدم ممارسة الرضاعة الطبيعية في الأماكن العامة مثل المطاعم.					
تكون التغذية البديلة الاختيار الأفضل إذا رغبت الأم في العمل خارج المنزل					
عندما ترضع الأم طفلها يشعر الأب بأنه لا يجد الرعاية					
الرضاعة الطبيعية أكثر ملاءمة من التغذية البديلة					
الغذاء البديل صحي للطفل كحليب الأم					
الأطفال الذين يعتمدون على الرضاعة الطبيعية يتمتعون بصحة أفضل من الذين يعتمدون على الغذاء البديل					
تدوم فوائد حليب الأم فقط لمدة الرضاعة					
الطفل الأكثر وزنا هو الأفضل صحة					
تؤثر الرضاعة الطبيعية على شكل الأم بشكل سلبي					

هل هناك أي شئ تودين إخباري به حول إرضاع طفلك؟

إذا كان هاذا هو طفلك الاول فهذه نهاية الاستبيان شكرا جزيلا لك على تعاونك

القسم الثاني

في هذا الجزء من الإستبيان اود التعرف على تجربتك السابقة مع آخر طفل لك مع الرضاعه الطبيعية

25- كم يبلغ من العمر آخر طفل لديك؟

.....

26- في أي مشفى قمت بولادة آخر طفل لكِ؟

.....

.

27- كم عدد الاطفال لديك؟

- ○ 1
- ○ 2
- ○ 4-3
- ○ 6-5
- ○ اكثر من 6

28- رجوعا بالذاكرة الى الوراء، كيف قمت بإضاع آخر طفل

ملاحظة:

الرضاعة الطبيعية الحصرية: حيث يعتمد الأطفال على حليب الأم فقط

التغذية الغالبة: حيث يتم تغذية الطفل من لبن الأم والماء أو الأعشاب دون استخدام الحليب الصناعي.

التغذية المختلطة: حيث يتم تغذية الأطفال بحليب الأم بالإضافة للحليب الصناعي

التغذية المقتصرة على الحليب الصناعي فقط: حيث لا يحصل الطفل على حليب الأم ويتغذى على الحليب الصناعي فقط.

	الرضاعة الطبيعية الحصرية	**التغذية الغالبة**	**التغذية المختلطة**	**التغذية المقتصرة على الحليب الصناعي فقط**	**إضافة الغذاء الصلب**
عند الولادة					
الاسبوع الاول					
الشهر الاول					
الشهر الثالث					
الشهر السادس					
السنة الأولى					

29-لماذا قررت بإستخدام الرضاعه الصناعية كمكمل، او التوقف عن الرضاعه الطبيعية؟

.....
.....
.....

30- هل واجهت أي مشاكل في بداية ارضاع آخر طفل؟

- ○ لا
- ○ نعم ، أرجو ذكر ذلك

.....
.....

31- هل واجهت أي مشاكل خلال فترة إرضاع طفلك طبيعيا؟

- ○ لا
- ○ نعم

ماذا كانت

.....

.....

32- من قام بدعمك خلال فترة إرضاعك طبيعيا لآخر طفل لك؟

- ○ لم اتلقى الدعم
- ○ الدكتور
- ○ استشارية الرضاعة
- ○ الزوج
- ○ الصديقات
- ○ الأم/ ام الزوج
- ○ آخرون, الرجاء ذكرهم

.....

33- ماهي المساعدة التي كانت الأكثر فائدة بالنسبة لك؟

.....
.....

هل هناك أي شئ كنت تودين إخباري به عن الرضاعة الطبيعية لطفلك؟

هذه نهاية الإستبيان. الرجاء الإنتقال الى الجزء الخاص بالمعلومات الأخرى.

الإستبيان الإحصائي

ارجو الإجابة بوضع دائرة أو تعبئة الفراغ:

1- كم عمرك؟

.....

2- ماهي جنسيتك؟

- ○ سعودية
- ○ غير سعودية, الرجاء التحديد .....

3- ما هي حالتك الاجتماعية؟

- ○ متزوجة
- ○ منفصلة/ مطلقة

4- ما هو مستوى تعليمك ؟

- ○ أقل من الثانوي
- ○ الثانوي
- ○ جامعي
- ○ فوق الجامعي

5- ما هو عملك الوظيفي؟

- ○ العمل بدوام كامل/ بنصف دوام
- ○ طالبة
- ○ لا أعمل

6- ما هو دخل أسرتك ؟

- ○ **5000-2000 ريال سعودي**
- ○ **8000 – 5000 ريال سعودي**
- ○ **10000-8000 ريال سعودي**
- ○ **أكثر من 10000 ريال سعودي**

7- هل تدخنين؟

- ○ لا أدخن
- ○ 1-2 في اليوم
- ○ 25 في الأسبوع
- ○ أكثر من 25 في الأسبوع

8- هل التحقت بدورة تدريبية عن فترة ما قبل الولادة؟ إذا كانت الإجابة بنعم أين كانت الدورة؟

- ○ نعم
- ○ لا

أين كان ذلك .....

9- ماهو الوقت المناسب للإتصال بك لإجراء المقابلة الهاتفية التالية؟

.....

بهذا انتهى الاستبيان ونشكرك على المساعدة في تعبئته. سوف أقوم بالاتصال بك بعد شهر من الآن لإجراء المقابلة الهاتفية معك

شكرا جزيلا

4. 1 month postpartum questionnaire (English version)

How do you plan to feed your baby?

(1 month)

If you have questions at any time about the survey or the procedures, you may contact Anwaar Shahbar at **009669967776** or by email at the email address Anwaar.sh@hotmail.com.

Please complete the questionnaire

Thank you

1. **How do you feed your baby now;**

a) Exclusive breastfeeding, has the baby has any bottle during last 3 weeks? (If yes probe if had any water or herbs etc.)

Have a bottle?	When had bottle	What in it	Why gave it	How often

b) Mixed-feeding, if yes fill in the table please.

How many times breastfeed/ day	How many times bottle feed/day	What is in bottle	When first given	Why gave it

c) Exclusive formula feeding, if yes please fill in the table.

When first introduce bottle (if none at hospital)	Why	When first introduce formula (if none at hospital)	When stopped breastfeeding	Why have you stopped

2. **Do you have any plans to change the way you are feeding your baby in the next two months?**

……
……
……

3. **Over the next 11 months, what type of milk feeding are you planning to use;**

Note:

Exclusive breastfeeding is that Infants feeding with only breast milk, no water or herbs.

Predominant feeding is that infants feeding with breast milk, water or herbs but no formula

Mixed-feeding is that Infants feeding with breast milk plus formula.

Exclusive formula feeding is that infants receive no breast milk and only formula.

	Exclusive breastfeeding	**Predominant feeding**	**Mixed-feeding**	**Exclusive formula feeding**	**Add solids**
3 months postpartum	○	○	○	○	○
6 month postpartum	○	○	○	○	○
12 months postpartum	○	○	○	○	○

4. **Have you had any negative comments about your breastfeeding? If yes, from who and what?**

……
……

5. **Have the negative comments affected your feeding practice? If yes, how?**
   - ○ Yes
   - ○ No

   How

……
……

6. **Who has given you support with breastfeeding your baby during previous month? And how?**

……
……

7. **For each of the following statements, please choose the answer that best describes how confident you are with breastfeeding your new baby. Please mark your answer by circling the number that is closest to how you feel. There is no right or wrong answer.**

	Not at all confident	Not very confident	Sometimes confident	Confident	Very confident
I will be able to breastfeed my baby					
I will be able to produce enough milk for my baby with only breastfeeding					
I can always determine that my baby is getting enough milk					
I can always successfully cope with breastfeeding like I have with other challenging tasks					
I can always breastfeed my baby without using formula as a supplement					
I can always manage the breastfeeding situation to my satisfaction					
I can always manage to breastfeed even if my baby is crying					
I can always keep wanting to breastfeed					
I can always comfortably breastfeed with my family members present					
I can always be satisfied with my breastfeeding experience					
I can always deal with the fact that breastfeeding can be time consuming					
I can always finish feeding my baby on one breast before switching to the other breast					
I can always continue to breastfeed my baby for every feeding					
I can always manage to keep up with my baby's breastfeeding demands					
I can always tell when my baby is finished breastfeeding					

If you still breastfeeding please skip to question 8

If no longer breastfeeding, thank you for your help, do you have any further comments?

Would you like a copy of the report?

- ○ Yes , if yes please write your email address or post details
- ○ No

E mail……. Post address ……

8. **Are you willing to be asked about your feeding practice at 3 months?**
    - ○ Yes, If yes please answer question 20
    - ○ No

9. **Which way do prefer for communicating?**
    - ○ Phone calls
    - ○ E-mails

10. **What time of day is best for you?**

.....

This is the end of the questionnaire thank you for your time

5. 1 month postpartum questionnaire (Arabic version)

كيف تخططين لتغذية طفلك؟

(شهر واحد)

أرجو تعبئة الاستبيان

إذا كانت لديكم استفسارات عن المسح أو الإجراء يمكنكم في أي وقت الاتصال على أنوار شحبر على الرقم 00966549976776 أو عن طريق البريد الالكتروني anwaar.sh@hotmail.com

وشكرا

1. كيف تطعمين طفلك الآن؟

أ- الرضاعة الطبيعية فقط ، هل أعطي الطفل أي قارورة خلال الثلاث الأسابيع السابقة؟

أخذ قارورة ؟	متى تم إعطائه القارورة	ماذا بها؟	لماذا أعطيت له	كم مرة في اليوم

ب- التغذية المختلطة، إذا كانت الإجابة بنعم أرجو تعبئة الجدول التالي:

كرة مرة يتم إرضاع الطفل طبيعيا في اليوم ؟	كم مرة تتم تغذيته بالقارورة في اليوم ؟	ماذا في القارورة غير الحليب الصناعي؟	متى أعطيت له الحليب الصناعي لأول مرة؟	لماذا أعطيت له؟

ج- الحليب الصناعي فقط ، إذا الإجابة بنعم أرجو تعبئة الجدول التالي:

متى قدمت القارورة(سواءا تحتوي حليب صناعي أو غير ذلك مثال: ماء او اعشاب) للطفل لأول مرة ؟	لماذا	متى قدم الحليب الصناعي لأول مرة	متى توقفت الرضاعة ؟

2. **هل لديك أي خطط لتغيير الطريقة التي تطعمين بها طفلك خلال الشهرين القادمين؟ لماذا؟**

.....

.....

3. **ما هو نوع التغذية الذي تسعين لاستخدامه خلال الـ 11 شهرا القادمة ؟**

ملاحظة:

الرضاعة الطبيعية الحصرية حيث يعتمد الأطفال على حليب الأم فقط

التغذية الغالبة: حيث يتم تغذية الطفل من لبن الأم والماء أو الأعشاب دون استخدام الحليب الصناعي.

التغذية المختلطة: حيث يتم تغذية الأطفال بحليب الأم بالإضافة للحليب الصناعي

التغذية المقتصرة على الحليب الصناعي فقط حيث لا يحصل الطفل على حليب الأم ويتغذى على الحليب الصناعي فقط.

	الرضاعة الطبيعية فقط	**التغذية الغالبة**	**التغذية المختلطة**	**التغذية المقتصرة على الحليب الصناعي** فقط	**إضافة الغذاء الجامد**
3 أشهر بعد الولادة					
6 أشهر بعد الولادة					
12 شهر بعد الولادة					

4. **هل تلقيت أي تعليقات سلبية بخصوص الرضاعة الطبيعية لطفلك؟ إذا كانت الإجابة بنعم فمن من صدرت تلك التعليقات وما هي ؟**

.....

.....

.....

5. **هل أثرت تلك التعليقات السلبية على ممارستك للرضاعة الطبيعية؟ إذا كانت الإجابة بنعم فكيف؟**

○ نعم

○ لا

كيف؟.....

.....

6. **من الذي قدم لك المساندة بخصوص الرضاعة الطبيعية لطفلك؟ و كيف؟**

.....

.....

7. أرجو أن تختاري لكل من العبارات أدناه، أكثر إجابة تصف مدى ثقتك في إرضاع طفلك طبيعيا. أرجو وضع علامة في الخانة المناسبة.

	غير واثقة تماما	غير واثقة جدا	واثقة احيانا	واثقة	واثقة جدا
يمكنني دائماً التحديد بأن طفلي يحصل على ما يكفيه من الحليب					
يمكنني دائما التعامل مع الرضاعة الطبيعية بنجاح مثل تعاملي مع باقي المهام الصعبة الأخرى					
استطيع دائماً ارضاع طفلي من الثدي دون استخدام الحليب الصناعي كمكمل غذائي					
يمكنني دائما التأكد من ان طفلي ملحق بالحلمة بصورة صحيحة خلال إرضاعه					
استطيع دائما ان اجعل الرضاعة الطبيعية ممتعة					
يمكنني دائماً أن أقوم بالرضاعة الطبيعية حتى ولو كان طفلي يبكي					
يمكنني دائماً الحفاظ على الرغبة في الرضاعة الطبيعية					
استطيع دائماً القيام بالرضاعة الطبيعية بشكل مريح في حضور افراد عائلتي					
استطيع دائماً ان أكون راضية عن تجربتي مع الرضاعة الطبيعية					
يمكنني دائماً التعامل مع حقيقة أن الرضاعة الطبيعية استهلاك للوقت					
يمكنني دائماً أن انتهي من ارضاع طفلي من الثدي الاول قبل ان ينتقل الى الثدي الآخر					
يمكنني دائماً أن استمر في إرضاع طفلي في كل رضعة					
استطيع دائما التعامل مع متطلبات طفلي من					

الرضاعة الطبيعية					
استطيع دائما تحديد وقت انتهاء طفلي من الرضاعة					

إذا ما زلت ترضعين طفلك أرجو التحول للسؤال 8

إذا توقفت عن الرضاعة الطبيعية فنشكرك على المساعدة في تعبئة هذا الاستبيان؛ هل تودين الحصول على نسخه من ملخص النتائج النهاية للبحث؟

- نعم، أرجو كتابة عنوان البريد الالكتروني أو البريد العادي الخاص بك
- لا.

البريد الالكتروني..... عنوان البريد.....

8. **هل أنت مستعدة للرد على أسئلة عن ممارستك للتعذية بعد ثلاثة أشهر؟**
   - نعم؛ ارجو الإجابة على السؤال رقم 8
   - لا
9. **بأي الطرق تفضلين الاتصال عليك؟**
   - الاتصالات التليفونية
   - البريد الالكتروني
10. **في أي وقت من اليوم تفضلين الاتصال عليك؟**

.....

بهذا انتهى الاستبيان نشكرك على المشاركة.

6. Information sheet (English version)

MASSEY UNIVERSITY
COLLEGE OF SCIENCES
TE WĀHANGA PŪTAIAO

Women breastfeeding knowledge, attitudes, and experience

You are invited to participate in research to understand at their breastfeeding knowledge, attitudes, experience, in west of Saudi Arabia, Jeddah. The purpose of this study is to help understand how to support women to successfully breastfeed.

The research will be conducted by Anwaar Shahbar, for her Master's degree in Human Nutrition at Massey University in New Zealand. This study is supported by Massey University. The supervisors for this project are Dr. Janet Weber of Massey University, Professor Suhad Bahijri of King Abdul-Aziz University, Jeddah, Saudi Arabia, and Dr. Muneera Balahmar Director of Health education.

PROJECT DESCRIPTION AND PROCEDURES

Women who have given birth in Suliman Fakeeh Hospital, the International Medical Hospital, and the Saudi Germany Hospital are invited to participate in this research study. Your participation is entirely voluntary.

Participation in the research involves the following:

1) You will be asked to fill out an initial questionnaire (15 minutes).
2) You will be asked if you are willing to be contacted again when the baby is 1, 3, and 6 months to complete a questionnaire through a phone interview (15 minutes).
3) You will be given a breastfeeding scarf as a gratitude and appreciation award for your participation and cooperation.

Before deciding whether to participate, please read the information below, and ask questions to clarify points you do not understand. Please take as much time as you

need to read the information sheet. You may also decide to discuss participation with your family or friends. The questionnaire will include questions around breastfeeding.

RISKS AND BENEFITS

There are no risks associated with the participation in this study. Your participation will help us to gain information about how to support breastfeeding mothers. It may contribute in improving your confidence regarding breastfeeding.

CONFIDENTIALITY

The information within the questionnaires will be used for study purposes only. In addition, any identifiable information obtained in connection with this study will remain confidential.

This data will be coded and only used by researchers. In addition, data will be securely stored as a hard and soft copy at Massey University and will be kept for minimum for 3 years. When the results of the research are published or discussed in conferences, no identifiable information will be used.

PARTICIPATION AND WITHDRAWAL

Your participation is voluntary;

- Your refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled.
- You may withdraw your consent at any time and discontinue participation without penalty.
- You have the right to decline to answer any question.
- You have the rights to ask any questions about the study at any time during participation.
- Your name will not be used unless you give permission. You will also be given access to a summary of the project findings when the research is concluded.

If you have any concerns about this research that you wish to raise with someone other than me, please contact either Dr. Weber or Professor Bahijri directly.

Sincerely
Anwaar Shahbar

Research team contact details

Name	Role in research	e-mail	Phone number
Anwaar Shahbar	Principle investigator	Anwaar.sh@hotmail.com	Saudi Arabia 00966549976776 New Zealand 0064210642940
Janet Weber	Supervisor	J.L.Weber@massey.ac.nz	006463504403 ext. 4403
Suhad Bahijri	Co-supervisor	sbahijri@gmail.com	0096626400000 ext. 25019

A Low-Risk Notification has been submitted to MUHEC and this phase of the research has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher named above is responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research, that you wish to raise with someone other than the researcher or head supervisor, please contact Professor John O'Neill, Director (Research Ethics), (06 3505249, humanethics@massey.ac.nz).

7. Information sheet (Arabic version)

MASSEY UNIVERSITY
COLLEGE OF SCIENCES
TE WĀHANGA PŪTAIAO

مستوى معرفة, ممارسة, وخبرة الامهات عن الرضاعة الطبيعية

أنت مدعوة للمشاركة في بحث لفهم ومعرفة مستوى المعرفة, الممارسة, و الخبرة حول الرضاعة الطبيعية بمدينة جده غرب المملكة العربية السعودية. وذلك بهدف فهم كيف يمكن دعم ومساعدة الأمهات على النجاح في الإرضاع طبيعيا.

إن هذا البحث سوف يتم لغرض إتمام مرحلة الماجستير في علم تغذية الإنسان من قبل الطالبة انوار شحبر بجامعة ماسي في نيوزلندا. إن هذا البحث مدعوم من قبل جامعة ماسي تحت إشراف الدكتورة جانت ويبر من جامعة ماسي في نيوزلندا و البرفيسورة سهاد باحجري من مركز الملك فهد للأبحاث الطبية بجامعة الملك عبدالعزيز بجده، و الدكتورة منيرة بلحمر رئيس لجنة التثقيف الصحي بمجلس محافظة جده.

شرح إجراءات البحث

النساء اللآتي وضعن حملهن في كلاً من مستشفى الدكتور سليمان فقيه, المستشفى الطبي الدولي, والمستشفى السعودي الألماني مدعوات للمشاركة في هذه الدراسة, إن مشاركتك في هذا البحث تعتبر تطوعية بالكامل.

مشاركتك في هذا البحث تشمل الآتي:

١- تعبئة الإستبيان الأساسي حيث يستغرق 15 دقيقة لإتمامه
٢- إذا كنت موافقة ولديك الرغبة سيتم الإتصال بك عندما يبلغ الطفل الشهر الأول, الثالث, والسادس لتعبئة إستبيان اخر خلال مقابلة هاتفية حيث يستغرق 15 دقيقة لإتمامه
٣- سوف يتم منحك جائزة شكر وتقدير لمشاركتك و تعاونك في إتمام الدراسة وهي عبارة عن وشاح للرضاعه الطبيعية

قبل ان تقرري هل ستشتركين ام لا, ارجو قراءة المعلومات أدناه والتفضل بالسؤال إذا كان لديك أي استفسار بخصوص البحث. خدي الوقت الكافي لقراءة ورقة المعلومات كما يمكنك استشارة احد افراد عائلتك حول المشاركة اذا رغبت بذلك. إن الإستبيان يحتوي على مجموعة من الأسئلة حول الرضاعه الطبيعية.

المخاطر والفوائد

ليس هناك مخاطر مرتبطة بمشاركتك في هذا البحث كما ان مشاركتك سوف تساعدنا في الحصول على بعض المعلومات التي ستساهم في التعرف على كيفية دعم الامهات المرضعات وعلى تحسين مفاهيمك وثقتك بالقدرة على الرضاعه الطبيعيه.

الخصوصية

المعلومات التي سوف تعبئ في الاستبيان سوف تستخدم لأغراض دراسية فقط. أي معلومات تعريفية تم جمعها في هذا البحث سوف تبقى سرية. البيانات التي سوف تجمع سيتم ترميزها و استخدامها من قبل الباحثين فقط. البيانات سوف يتم

تخزينها بسرية تامة كنسخة إلكترونية ونسخه صلبة في مكان آمن بجامعة ماسي و سوف يتم الإحتاظ بها لمدة اقلها 3 سنوات. إذا تم مناقشة البحث في أي مؤتمر أوتم إصداره لن تستخدم اي معلومات شخصية خاصة بالمشتركات.

المشاركة والإنسحاب

مشاركتك تعتبر تطوعية:

* إن رفضك بالإشتراك لن تترتب عليه أي عقوبات أو خسارة للفوائد التي خولت لك

* تستطيعين الإنسحاب وعدم المشاركة في إكمال البحث في أي وقت ترغبين دون أي عقوبات

* لديك الحق في رفض الإجابة على أي سؤال

* لديك الحق في السؤال والاستفسار عن اي شئ يتعلق بالدراسة في أي وقت

* اسمك لن يتم إستخادمة إلا إذا سمحت بذلك وسوف يكون لديك القدرة على الإطلاع على ملخص نتائج البحث بعد الإنتهاء منه وإظهار النتائج.

إذا كان لديك أي اهتمامات بخصوص المشاركة في البحث ولديك الرغبة في مناقشة ذلك مع شخص آخر غيري يرجى الاتصال على الدكتورة جانت ويبر أو البرفيسورة سهاد باحجري.

مع التحية

أنوار شحبر

معلومات الاتصال بفريق البحث

الإسم	الدور	البريد الإلكتروني	رقم الهاتف
انوار شحبر	الباحثة الأساسية	Anwaar.sh@hotmail.com	00966549976776
الدكتورة جانت ويبر	المشرفة الرئيسية	J.L.weber@massey.ac.nz	006463504403 4403 تحويلة
البروفيسورة سهاد باحجري	المشرفة المساعدة	Sbahijri@gmail.com	0096626400000 25019 تحويلة

لقد تم تسليم اشعار يسمى باشعار منخفض المخاطر الى جامعة ماسي(MUHEC) والى جامعة الملك عبد العزيز بجده وتم تقيم البحث بواسطة عدد من الزملاء وتم مراجعته و الحكم عليه بانه بحث منخفض المخاطر. ولكن لم يتم تقيم البحث من قبل احد اللجان الاخلاقيه الانسانية بالجامعه. والباحثة المذكوره اعلاه تعتبر مسؤله عن السلوك الاخلاقي فالبحث.

لو كان لديك اي اهتمامات حول سلوكيات هذا البحث تودين ان تسألي اي فرد غير الباحث او المشرف, الرجاء الاتصال على بروفيسور جون اونيل (اخلاقيات البحوث) (006463505249) massey@icshhumanet.com

8. Participants consent form (English versions)

MASSEY UNIVERSITY
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TE WĀHANGA PŪTAIAO

مستوى معرفة ، ممارسة ، وخبرة الامهات عن الرضاعة الطبيعية

لقد اطلعت على ورقة المعلومات وعلى تفاصيل البحث الذي سأشارك فيه و لقد تمت الإجابة على جميع اسألتي المتعلقة بالبحث وانا على علم اني استطيع لاحقا القيام بالاستفسار والسؤال في اي وقت.

انا اوافق على الاشتراك في هذا البحث وفقا للشروط الموجودة في ورقة المعلومات

التوقيع.....

التاريخ \ \1433 هـ

9. Participants consent form (Arabic version)

MASSEY UNIVERSITY
COLLEGE OF SCIENCES
TE WĀHANGA PŪTAIAO

Women breastfeeding knowledge, attitudes, and experience

Participants Consent Form

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I agree to participate in this study under the conditions set out in the Information Sheet.

Signature: ..... **Date:** .....

Full Name - .....

10. Comparison between demographics of opted out women and followed-up women

	Did not respond at 1 month N=25		Followed-up at 1 month N=77	
	N	%	N	%
Parity				
Primiparous	8	25	24	75
Multiparous	17	24	53	75.7
Baby's gender				
Boy	13	22	45	77.6
Girl	12	27	32	72.7
Education level				
< high school	5	41	7	58
High school	5	20	19	79
Undergraduate degree	14	22	49	77.8
Postgraduate degree	1	33	2	66.7
Occupation				
Working	2	14	12	85
Student	2	18	9	81
Housewives	21	27	55	72
other	0	0	1	100
Family income				
2000- 5000 SR/month	7	31	15	68
5000- 8000 SR/month	7	21	25	78
8000- 10000 SR/month	4	19	17	81
>10000 SR/month	5	21	18	78
Other	2	100	0	0
Type of hospital				
BFHI	16	30	36	69
Non-BFHI	9	18	41	82
Delivery mode				
Normal	14	31	31	68
Caesarean	11	19	46	80
Nationality				
Saudi	16	25	48	75
Egyptian	5	31	11	68
Others	4	18	18	81
Women's age				
<25 years	10	32	21	67
25- 30 years	7	19	29	80
>30 years	8	22	27	77

11. Type of help received while in hospital

	BFHI N=52		Non-BFHI N=50		Total frequency N= 102	
	N	%	N	%	N	%
If women got help with breastfeeding new baby	46	88.5	29	58	75	74
Nurse help **Practical** **Emotional** **Information+ practical** **Practical+ emotional**	 17 1 1 1	-	 1 0 0 0	-	 18 1 1 1	-
Total	20	38.5	1	2	21	21
Lactation consultant help **Information** **Practical** **Information+ practical** **Information+ emotional** **Information+ emotional+ practical**	 6 1 0 1 29	-	 3 4 6 0 0	-	 9 5 6 1 29	-
Total	37	71	13	26	50	49
Doctor help **Information**	0		2		2	
Mother help **Information** **Practical** **Emotional** **Information+ emotional** **Practical+ emotional**	 0 0 3 0 2	-	 3 2 11 2 1	-	 3 2 14 2 3	-
Total	5	7	19	38	24	24
Mother in law help **Information+ emotional**	0	0	1	2	1	1
Friends help **Information+ emotional**	0	0	1	2	1	1
Husband help **Emotional**	3	6	6	12	9	9
Others **Information** **Practical** **Emotional** **Practical+ emotional**	 0 1 0 0	-	 1 1 2 1	-	 1 2 2 1	-
Total	1	2	5	10	6	6

12. Information during pregnancy

	BFHI		Non-BFHI		Total frequency	
	N	%	N	%	N	%
If got breastfeeding information during pregnancy						
No	20	39	18	36	38	37
Yes	32	61	32	64	64	63
Total	52	100	50	100	102	100