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Running Head: POSITIVE DEVIANCE INQUIRY OF BREASTFEEDING IN EGYPT

The American University in Cairo

School of Humanities & Social Sciences

POSITIVE DEVIANCE INQUIRY OF BREASTFEEDING IN EGYPT

A Thesis Proposal Submitted to

The Department of Psychology

in partial fulfilment of the requirements for
the degree of Master of Community Psychology

by Ayah Ebada Sarhan

under the supervision of Dr. Carie Forden

November 2019

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Dedication

I dedicate this research to my two daughters; Malak and Nour who taught me to be optimistic and strong, and brought a whole new meaning to my life. I still remember the first time I held them in my arms; sixteen and ten years ago. I deeply love them and hope to be a positive role model for them. Motherhood is truly a miracle. I hope this research helps in making the necessary changes that will enable every mother to smoothly start a satisfying motherhood journey while feeling appreciated and respected.

I also lovingly dedicate my work to my beloved grandfather who genuinely believed in me and that I could do anything I dreamt of. He is my role model in kindness, generosity in the service of others, persistence, patience, and hard work. His words of encouragement and wisdom were my torch in the most challenging moments in life.

Acknowledgement

I would like to acknowledge the support and effort of my thesis supervisor and Community Psychology mentor; Dr. Carie Forden. I am so grateful for her support and encouragement during my learning journey as a Community Psychologist graduate student and researcher. I learnt a lot on the academic, professional, and personal level from her; she was an invaluable role model. She always welcomed my questions, deeply listened, and always assured me about my ability to figure things out, and kindly guided me throughout the whole process. Her humility made me see the impossible as possible and even easy. I truly appreciate her intellectual and emotional support.

I would like to thank Dr. Ibrahim El Kerdany and Dr. Yasmine Saleh for accepting my invitation to join the committee. Their input and support enabled me in progressing through the field work until completion. I would also like to thank Dr. Julie Pynn who encouraged me during my early research stage in 2017 and provided me with many helpful resources and encouragement.

Finally, I want to thank all my community of practice; all my professors and colleagues who contributed to my learning journey and helped me make it - Naela Refaat, Mona Amer, Hani Henry, Hassan Zaky, Ithar Hassaballah, Mohamed Taha, Jaime Mendoza, Kate Ellis, Mona El Sawaf, Safaa Sadek, Manal Abaza, Iman Shehata, Hajar Khalil, Nashwa Rashad, Mirna Fahim, Dina El Bawab, Azza Abdel Moneim, Sarah Hegazy, Cathy Jung, Youmna Taweel, Nourhan ElAraby, Sandra Youssef, Nada Shalaby, Noha Hassanein, Mona ElRuby, Mariam Moussa, Mai Ghanam, Deena Oreiby. They all taught me values such as: collaboration, compassion, dedication to others, and empathy. We had our moments of stress, and our moments of serenity, but we were there for each other. I appreciate all their kind words and support. I hope our paths will cross again soon.

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I would like to acknowledge the emotional and financial support of my parents who made this possible for me. I hope to make them proud always. I would like to acknowledge the patience of my children who entertained themselves while I was busy studying. And also, my husband and sisters who always encourage me to get out of my comfort zone especially Iman Sarhan. I would like to thank my baby niece Jana who joined the world when I was starting my journey and who had always brightened my day with her lovely smile and hug.

Abstract

Increases in malnutrition among Egyptian children under five years have been associated with decreases in rates of breastfeeding. International and national research have identified personal and contextual challenges that lower the chances of women breastfeeding. These challenges include lack of knowledge and support by medical personnel and family, negative societal attitudes, and institutional practices that inhibit breastfeeding. In this study, a positive deviance approach was used to identify the practices that enabled middle-class Egyptian women to initiate and continue breastfeeding. Data was collected from 33 positive deviant mothers using a survey and a semi-structured interview. Findings confirmed that they faced personal and structural challenges and including cultural beliefs and practices. Positive deviant mothers' persistence, self-efficacy, and confidence were enabling personal factors. They were aware of breastfeeding benefits to the baby. In addition, they insisted that their needs be met, ignored disempowering advice and people, and were eager to learn.

Based on these findings, it is recommended to design a community intervention program for pregnant mothers to strengthen self-efficacy and inform them how to start and continue breastfeeding, and communicate and elicit help from their significant family members. Also, mothers need access for support from medical practitioners trained in lactation management and to network with other mothers in support groups. Other structural factors require policy change to allow for flexible work arrangements, or facilities that would enable them to continue breastfeeding.

Key words: malnutrition, breastfeeding, positive deviance, self-efficacy, working mothers, Egypt.

Breastfeeding in Egypt: A Positive Deviance Inquiry

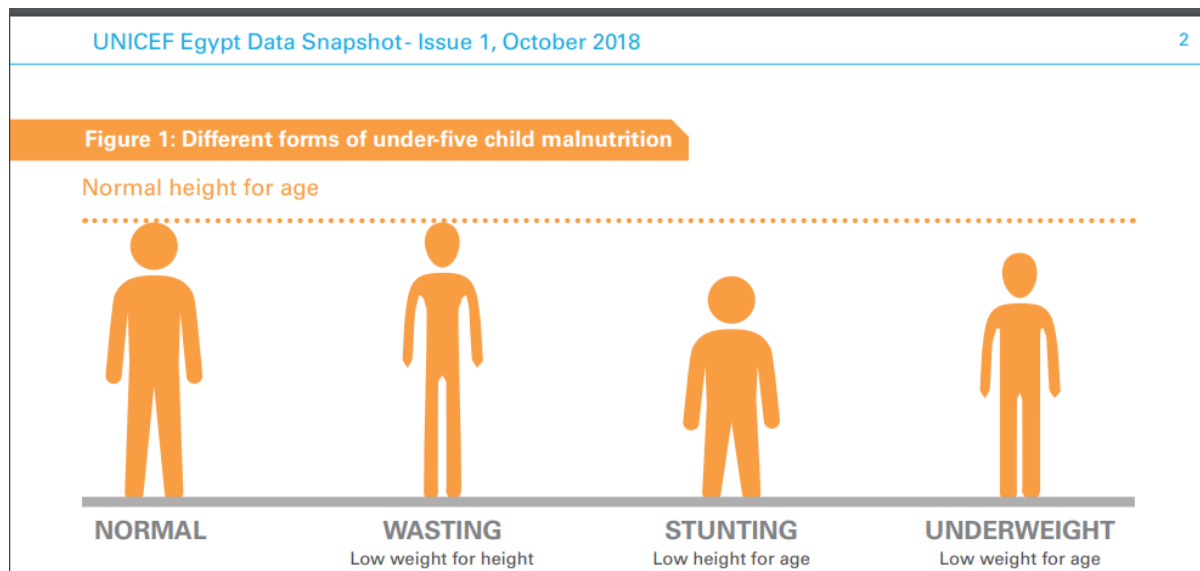
Malnutrition indicators in Egypt point to an existing problem in the early childhood years, which could impact the long-term health of the population and cause an increase in government and private expenditures on disease treatment and reduced work force productivity. According to the Lancet (2016), breastfeeding is the optimal and most efficient solution to promote health and wellbeing of mothers and their infants by preventing short-term communal diseases and long-term non-communal diseases. However, despite its benefits, breastfeeding rates in Egypt are very low and are decreasing. There are several theories about factors that inform and influence breastfeeding decisions. The primary purpose of this study is to investigate the factors that impact mothers' decision to breastfeed, and how mothers who succeed in breastfeeding address breastfeeding challenges. Learning the answers to these questions would ultimately help inform interventions and policy to promote women and children's wellbeing and health and preventing (or reducing the severity) of diseases resulting from malnutrition.

Malnutrition and Breastfeeding

Egypt is one of a group of 36 countries that are responsible for 90% of global malnutrition (UNICEF, 2017). Malnutrition has been cited as the main cause of two-thirds of deaths among Egyptian children under the age of five (UNICEF, 2015). The nutritional status of children is measured by indicators such as stunting (too short for age), wasting (too thin for height), and underweight (too thin for age category), see Figure 1. In 2018, UNICEF issued a report on malnutrition in Egypt stating that one in every five children under the age of five are stunted, and that wasting had increased since 2000. The report placed malnutrition as the second largest threat to a child's wellbeing after exposure to violence. Besides growth rate, malnutrition also impacts the child's language and cognitive development, leads to

lower school performance, and reduces their productivity when they grow up and join the workforce, which negatively impacts the economy (UNICEF, 2018).

Figure 1: Different Forms of under-five Child Malnutrition



Source: UNICEF (2018)

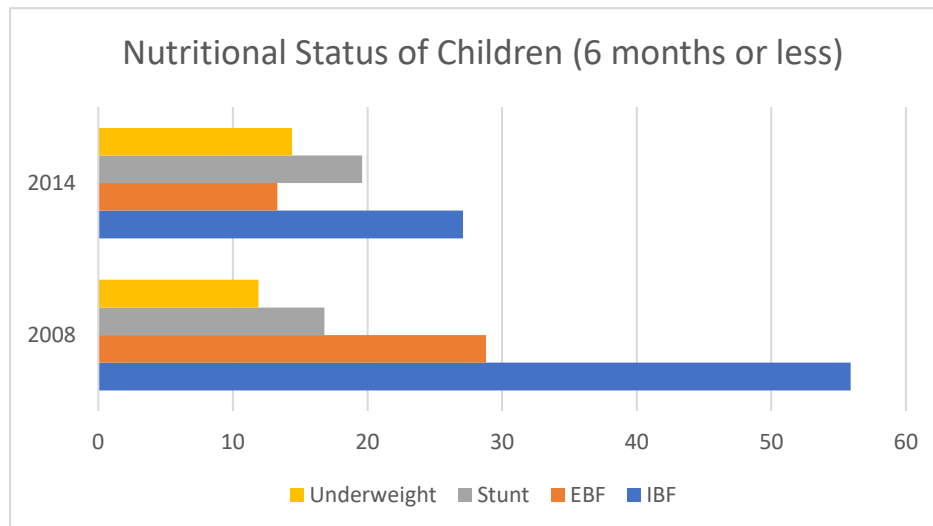
The nutrition agenda for action published by Egypt’s Ministry of Health and Population (2017) reported that these negative indicators begin at six months of age, go up until 24 months and stabilize at the age of five. This high rate of malnutrition in Egypt is associated with low breastfeeding rates in addition to poor infant and young child feeding practices (UNICEF, 2017). According to UNICEF’s report (2017) both are attributed to structural inequalities in access to resources, such as support from trained health care providers and adequate information.

Egypt’s 2014 Demographic and Health Survey (EDHS) reported that 27% of mothers initiated breastfeeding early (IBF) during the first hour after delivery and that only 13% were exclusively breastfeeding their child (EBF) until the age of four or five months, which is almost a 50% decline from the 2008 rates. Possibly due to this decline, the rates of stunting and wasting in children under six months of age showed similar changes with an increase in

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stunting from 16.8% in 2008 to 19.6% in 2014 and increase in underweight (too thin for age) from 11.9% in 2008 to 14.4% in 2014 (EDHS, 2008; EDHS, 2015). See Figure 2.

Figure 2: Nutritional Status of Egyptian Children under six months (2008 versus 2014)



Source: Egypt Demographic Health Survey (EDHS 2000-2014)

According to the World Health Organization and the American Academy of Pediatrics, for optimal nutrition it is recommended that babies breastfeed exclusively from birth until six months of age, are introduced to complementary food after six months, and then continue breastfeeding until two years of age (cited in La Leche League International, 2003). Research evidence has shown that this pattern of breastfeeding is the optimal way for maximizing nutritional benefits in terms of release and absorption of various vitamins and minerals that babies need for optimum growth and development.

Under article 24 in the International Convention on the Rights of the Child (1989) issued by the United Nations Human Rights, breastfeeding was recognized as a key component of every child's human right to the highest attainable standard of health. Breastfeeding has been cited by the International Baby Food Action Network (IBFAN) (2012) as the "single most effective intervention for saving lives" in its submission to the Office of the High Commissioner for Human Rights (OHCHR) study on the right of children to enjoy the highest attainable standard of health.

According to the Central Agency for Public Mobilization and Statistics in Egypt (CAPMAS, 2017) almost 90% of the 95+ million population are Muslims. In Islam, breastfeeding for two years is encouraged in the Holy Quran in several different verses; "His mother carried him, in weakness upon weakness, and his period of weaning is two years" (Quran, 31:14). "His mother carried him with hardship and gave birth to him in hardship. And the carrying of the child to his weaning is a period of thirty months" (46:15). "If they both (parents) decide on weaning, by mutual consent, and after due consultation, there is no blame on them ... And if you decide on a foster-mother for your offspring, there is no blame on you, provided you pay (the foster-mother) what you offered, on equitable terms" (2:233). One would think that breastfeeding then would be the norm in Egypt, contrary to the real situation (Saeidi, 2014; Sayed, 2014).

Benefits of Breastfeeding

There is strong evidence regarding the benefits of breastfeeding to both the mother and her infant (Victoria et al., 2016), as well as benefits to the larger society.

Health Benefits

Breastfeeding influences a baby's survival, health, and development (UNICEF, 2017; Horta & Victoria, 2013). Breast milk (which can be interchangeably referred to as human milk) is a source of nutrients, vitamins, antibodies, enzymes, and minerals. It is recommended as an exclusive source of nutrition for the first six months without the need for any other liquids or food. The composition of breastmilk changes to meet the baby's growth, hunger and thirst needs, as infants have the ability to regulate their milk intake (Hassiotou, Geddes, & Hartmann, 2013; Khan et al., 2012; Lauwers & Swisher, 2005). Water is not needed during the first six months of exclusive breastfeeding even in hot climate, which guards against a baby's mortality from contaminated water (UNICEF, 2017).

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Breast milk is gentle on a baby's stomach and is easily digested, on the other hand substitutes can cause injuries to a baby's gut, where recovery could take weeks (Lauwers & Swisher, 2005; Hakim & Ashmawy, 1992). Artificial feeding is when an infant is fed either formula or breastmilk substitutes. It is not recommended except in extreme cases when mothers or their children have certain illnesses (WHO & UNICEF, 2009). Mixed feeding, as per the international recommendations of WHO and UNICEF, should start only after the first six months for optimum nutrition where the infant receives both breastmilk and any other food or liquid including water and complementary food. If started earlier, then it could pose a risk of infectious diseases due to food and water contamination (Lauwers & Swisher, 2005; Hakim & Ashmawy, 1992).

Human milk promotes early child development. The act of suction during breastfeeding helps in the proper development of the mouth and jaw, the promotion of the child's dental health, and the secretion of hormones for digestion and satiety (Lauwers & Swisher, 2005; Abu Hamila, 2013; Aly, 2015). A systematic review and meta-analysis by Tham et al. (2015) concluded that breastfeeding may protect against dental caries.

Breast milk promotes healthy physical growth and development (Abdel Salam, 2016; Abdel Fattah, 2018). It also reduces the incidents and/or severity of allergies, infections, diarrhea, constipation, asthma, and leukemia (UNICEF; Horta & Victoria, 2013; American Academy of Pediatrics; Mississippi State Department of Health; La Leche League International; El Sherbini, 2012; Guaraldi & Salvatori, 2012; Fanos, Pintus, Reali, & Dessì, 2017). Before human milk flows as the commonly known white liquid, colostrum is produced; a golden liquid that stimulates the baby's immune system and protects against infection (Lauwers & Swisher, 2005; UNICEF; Mississippi State Department of Health; La Leche League International). A meta-analysis of six high-quality studies in high income countries showed that breastfeeding was associated with a 36% reduction in sudden infant

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deaths (Victoria et al., 2016). Also, a review of 18 studies showed an association between breastfeeding and a 19% reduction in childhood leukemia (Victoria et al., 2016).

Human milk is a protective factor that lasts beyond childhood according to the breastfeeding series issued by the Lancet (Victoria et al., 2016; Horta & Victoria, 2013). According to UNICEF (2017), research has shown that adults who were breastfed as babies are at a lower risk of developing chronic diseases such as metabolic syndrome due to obesity, atherosclerotic heart disease caused by high cholesterol, high blood pressure, diabetes mellitus, chronic inflammatory bowel disease and leukemia during their adulthood (Horta & Victoria, 2013; El Demerdash, Abul-Fadl, Anwar, & El Refaey, 2013; Aune, Norat, Romundstad, & Vatten, 2014; Wang, Li, & Shi, 2015; Peters et al, 2017; Abul-Fadl & El Bakry, 2018). A meta-analysis conducted for high income countries revealed that a longer duration of breastfeeding was associated with reduced risk for overweight, obesity and type 2 diabetes by 26% (Victoria et al., 2016).

Psychological Benefits

There is research showing the benefits of human milk on the psychological and neurodevelopment level. Liu, Leung, & Yang (2014) suggested that there could be an association between active bonding (which they defined as verbal communication) and breastfeeding, and a reduced risk for internalizing problem behaviors such as anxiety and depression. Their study also suggested that the mother-child interaction during feeding might have an impact (Liu et al., 2014). Other researchers have proposed that a mother's sensitivity to her baby's early hunger cues (before crying) and her responsiveness through skin-to-skin contact and breastfeeding can contribute to a high quality and trusting relationship (Lauwers & Swisher, 2005; Papp, Weaver, & Schofield, 2018). That trust could facilitate a secure attachment between a mother and her child and could become the basis for positive social development later in life (UNICEF; Mississippi State Department of Health; Pittman, Keiley,

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Kerpelman, & Vaughn, 2011). Papp et al. (2018) studied the link between duration of breastfeeding and the mother's sensitivity in understanding and responding to her child until the age of 11 years. His longitudinal study revealed that responsive parenting and maternal sensitivity were associated with breastfeeding duration and might have resulted in a more stable relationship between mother and child, although Papp argued that more research was needed to confirm this link. In 2016 a study conducted in Cairo concluded that exclusive breastfeeding was associated with above average socio-emotional development (Metwally et al., 2016).

Other studies have also shown that breastfeeding helps in brain development (Isaacs et al., 2010), speech development, intelligence (3-5 points higher on average), and behavior tests compared to formula fed babies (Papp et al., 2018; Walker et al., 2011; La Leche League International, 2003). A large randomized trial revealed an increase of more than 7 IQ points (Victoria et al., 2016). There is growing evidence to support the higher cognitive and intellectual abilities of children who are exclusively breastfed and who continue breastfeeding until two years of age (Abul-Fadl et al., 2012).

Benefits for Mothers

The hormones (prolactin and oxytocin) secreted during the breastfeeding session help calm both baby and mother (UNICEF; American Academy of Pediatrics; Mississippi State Department of Health; Papp et al., 2018). Research reported by the Lancet's breastfeeding series (2016) shows that mothers also benefit from the process of breastfeeding their baby. It helps lower risk for post-partum depression and hemorrhage, and long-term conditions such as cardiovascular disease, type 2 diabetes, osteoporosis, breast and ovarian cancer. Evidence from a meta-analysis conducted by Victoria et al. (2016) revealed an inverse association between breastfeeding duration and invasive breast cancer and ovarian cancer. It can also

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help new mothers lose weight (Mississippi State Department of Health; Groer, Davis, & Hemphill, 2006; Hahn-Holbrook, Haselton, Dunkel-Schetter, & Glynn, 2013; El Abd, 2016).

Societal Benefits

Moreover, breastmilk is fresh, convenient, and environmentally friendly. It is readily available without water or fuel or plastic bottles, which situates it as cost-effective and sustainable.

Improved breastfeeding rates can also benefit the economy and make development efforts more sustainable. In 2017, UNICEF reported that breastfeeding could reduce health care costs. It claimed the following could be prevented: 20,000 annual deaths from breast cancer, nearly half of all diarrhea episodes, and one-third of all respiratory infections. This would translate in a reduction of hospital admission by over 50%. The report also stated that investments in promoting breastfeeding would result in economic gains of USD298 billion over 10 years across all low- and middle-income countries. Such investments could be directed towards improving access to skilled lactation counselling and education which has been shown to increase exclusive breastfeeding rates by 90% (UNICEF, 2017).

Given the above-mentioned benefits of breastfeeding, it could be concluded that it is relevant to the Sustainable Development Goals: the first goal on poverty, the second goal on nutrition, fourth goal on education, and the eighth goal on inclusive economic growth, and tenth goal on reducing inequalities (Victoria et al., 2016). A healthier population can perform better in education and at work.

Factors Influencing Breastfeeding Patterns

The success of breastfeeding depends on early initiation at birth and exclusivity for the first six months before complementing with food, for maximum nutritional benefits (Whipps, Yoshikawa, & Godfrey, 2018). The global patterns of breastfeeding reveal that only 43% of babies under 6 months were exclusively breastfed worldwide; 39% in developing

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countries, and only 13% in Egypt according to UNICEF's nutrition report (2016) and Egypt's Demographic Health Survey (2014).

According to the Lancet (2016) report on breastfeeding, high income countries also have generally low rates of breastfeeding with some variation. Some high-income countries such as Norway had better rates of initiation and continuation of breastfeeding compared to others such as the United Kingdom, which have recently showed some improvement (NHS, 2011; USDoHHS, 2005). According to the Department of Health in Austria in 2012, Norway's initiation rates exceeded 95% and continuation rates at six months reached 80%. According to the National Health Service in the United Kingdom in 2016/7, initiation rates reached 74.6% and continuation rates at 6-8 weeks after birth exceeding 40%. A Canadian national survey in 2010 revealed that the prevalence of exclusive breastfeeding at 6 months was reported at 13.8% in Canada (Al-Sahab, Lanes, Feldman, & Tamim, 2010). In 2016, the Lancet reported that breastfeeding at the age of 12 months is less than 1% in the UK, 16% in Sweden, 27% in the USA, and 35% in Norway (Victoria et al., 2016).

The main challenge in most middle- and high-income countries as reported by the Lancet in 2016 is the continuation of breastfeeding up to two years as per the international recommendations. In low income countries the challenge is early initiation and exclusivity of breastfeeding for the first 6 months (Victoria et al., 2016), with lower rates in urban areas compared to rural areas (WHO, 2011; Renfrew, McCormick, Wade, Quinn, & Dowswell, 2012).

Early Initiation of Breastfeeding

It is a common medical practice to give babies a pre-lacteal feed which is usually a bottle of sugar and water, even though the reflexes needed for breastfeeding are most responsive during the first two hours after delivery (Lauwers & Swisher, 2005). These

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reflexes make it easier for the baby to latch on and suckle effectively and for promoting flow of milk (Lauwers & Swisher, 2005).

The pre-lacteal feed is based on many misconceptions internationally and in Egypt such as insufficiency of breast milk during the first days after delivery, cleaning the baby's gut, and perceiving colostrum as not nutritious or even harmful; this belief is especially common in rural Upper Egypt (Rollins et al., 2016; Ismail, 2008). Delay in initiation of breastfeeding among Egyptian mothers was found to be a major factor inhibiting milk production, which usually later complicates exclusive breastfeeding (El-Gilany & AlHady, 2014; Abdulla, 2016; Mahfouz, 2006; Naguib, 2017). Evidence from various studies conducted in different Egyptian governorates reported that a pre-lacteal feed was given to 58% of babies in Mansoura, 43% in El Minya, and 60% in Alexandria (El-Gilany & AlHady, 2014; Abdulla, 2016; Mahfouz, 2006; Naguib, 2017). Other factors that may contribute to delays in initiation are caesarean delivery, preterm birth, and the need for incubation care (Bishr, 2013).

The Baby Friendly Hospital Initiative (BFHI) is an international initiative undertaken by UNICEF and WHO to make hospitals supportive of early initiation of breastfeeding. It prohibits pre-lacteal feeds (Mohamed et al., 2014). It also states nine other specific steps that hospitals need to follow in order to become accredited as Baby Friendly: complying with international code of marketing of breast milk substitutes, having a written infant feeding policy and communicating it to parents and staff, ensuring that the staff have sufficient knowledge and skill to support the mother to start breastfeeding, discussing the importance of breastfeeding management with pregnant women and their families, facilitating skin-to-skin contact immediately upon birth, and supporting mothers to breastfeed as soon as possible after delivery, enabling rooming in, supporting mothers to recognize early hunger cues,

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counseling mothers on the risks of bottle feeding and pacifiers, and supporting mothers to handle common difficulties (WHO, 2018).

A study conducted in rural areas of Giza and Fayoum in 2014 concluded that 32.4% of mothers initiate breastfeeding within the first hour of life, 29.9% exclusively breastfed their infants for 6 months after birth, and 64% introduced complementary food for children aged 6-9 months. Early breastfeeding was most common among young mothers (<25 years), with secondary or higher education, who had few children, with no history of complicated pregnancy or lactation problems, and who received health education about breastfeeding. The health education factor was the most influential predictor for early breastfeeding (El Shafei & Labib, 2014). In 1992, a longitudinal study in rural Giza in Egypt found common misconceptions about breastfeeding practices that led to the early cessation of breastfeeding and early introduction of food. Approximately 60% of mothers considered exclusive breastfeeding as breast milk plus food. Solid foods were introduced very early based on the belief that breast milk was not sufficient for the baby, which hindered the production of breastmilk and resulted in the inability of mothers to continue to exclusively breastfeed (Hakim & Ashmawy, 1992; Suskind & Lessen, 2011).

Duration of Breastfeeding

Scientific evidence from developed countries has shown that the duration of breastfeeding correlates with knowledge about breastfeeding and seeking support (Brown, 2014). Confidence, self-efficacy, and self-determination and belief have shown to be important to breastfeeding duration (Brown, 2014). The mother's intention during pregnancy to start and continue breastfeeding was a strong predictor for duration of breastfeeding (Rollins et al., 2016).

A study of 15 developing countries showed that changes in the population characteristics with mothers shifting to bottle feeding to return to work has resulted in a

reduction in breastfeeding duration, which is expected to continue further and hence requires increased promotion for breastfeeding (Grummer, 1996).

Previous research conducted in Egypt about knowledge and attitudes towards breastfeeding found out that duration was impacted by lack of awareness about its benefits to the mother. Mothers knew that breastfeeding was the best nutritional source for the baby. However, they did not know about the benefits for themselves. On the contrary, they thought it would impact them negatively through breast disfigurement or preventing them from returning to work (Mohammed, Ghazawy, & Hassan, 2014; Ismail, 2008).

Theories of Breastfeeding Behavior

Breastfeeding behavior is complex, and previous research about the motivation to breastfeed has investigated either intraindividual factors, or contextual and structural factors. Intraindividual theories explain the choice to breastfeed as the “individual responsibility” of the mother, while contextual theories focus on social and cultural factors as shaping mothers’ ability to choose breastfeeding.

Intraindividual theories include the theory of reasoned action (DiGirolamo, Thompson, Martorell, Fein, & Grummer-Strawn, 2005), self-efficacy theory (Nichols, Schutte, Brown, Dennis, & Price, 2009), and the theory of planned behavior (Duckett et al., 1998). The reasoned action theory refers to the mother’s intention to breastfeed as a predictor for starting breastfeeding, and to her initial experience as a predictor for continuing (DiGirolamo et al., 2005). Similarly, the planned behavior theory (Duckett et al., 1998) stipulates that the intention for carrying out a certain behavior (breastfeeding) is a major predictor to its actual implementation (initiation and duration of breastfeeding). The self-efficacy theory explains that mothers who believe that they can carry out a certain behavior (e.g. breastfeeding) are more likely to start and continue breastfeeding (Nichols et al., 2009).

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Research has provided evidence to support each of these theories. A study that examined the outcome of breastfeeding after a self-efficacy breastfeeding intervention with a group of mothers recommended using self-efficacy as an intervention for improving breastfeeding outcomes (Nichols et al., 2009). A study in the UK examined four beliefs underlying the intention to breastfeed: attitude towards breastfeeding, influence of significant others, perceived control, and self-efficacy (Giles et al., 2007). The study concluded that the planned behavior theory was a useful framework for planning for interventions given that intention was a strong predictor for breastfeeding as an infant feeding choice (Giles et al., 2007). A Dutch study conducted in 2014 showed a strong association between a mother's intention to breastfeed as early as in the first trimester and her action after delivery (Oosterhoff et al., 2014). While useful, these theories did not consider how the mother's environment or social context might impact her behavior.

Figure 3: Bronfenbrenner Ecological Systems theory

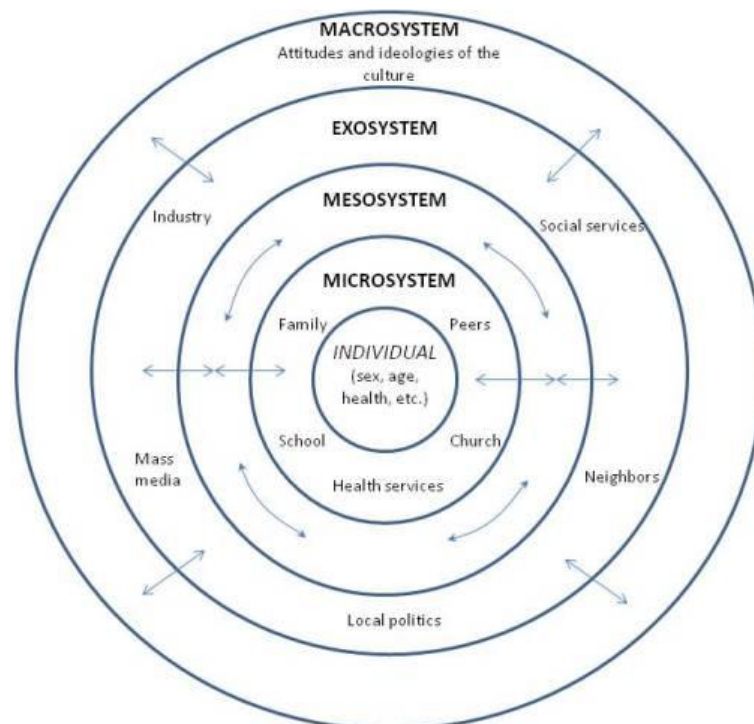


Image retrieved from: https://en.wikipedia.org/wiki/Ecological_systems_theory

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Social context theory stipulates that the mother's decision to breastfeed could be the result of structural factors such as availability of information, support, and services. The ecological model formulated by Urie Bronfenbrenner (1979), an American psychologist, explains that individuals can impact and are impacted by the ecological system that surrounds them. Figure 3 is a figure of the ecological system in which mothers operate. Mothers could be influenced by their face to face settings, or microsystems, for example, support received from family members, friends, their doctor/lactation consultant, work, hospital/health care unit. Also, mesosystems, the connections between a mother's various microsystems, could have an impact on a mother's choice for feeding her baby such as the connections between medical staff at the hospital and the mother's family members. Exosystems are interactions between settings external to the mother but that impact her microsystems, such as workplace policies around maternity leave and onsite feeding, hospital practices regarding rooming in and prelactal feeds, and prenatal education programs. Macrosystems are larger social, economic, legal and cultural influences, and could include media whose messages and effort can indirectly influence mother's choice and motivation to breastfeed, economic factors, laws, and religious beliefs regarding breastfeeding (Bronfenbrenner, 1979).

Structural inequities resulting from the lack of access to information and support from her environment could prevent a mother from breastfeeding (Dinour et al., 2016). Most of the international interventions have been directed towards structural factors such as the Baby Friendly Hospital Initiative, which targets the exosystem. Another example is a partnership between UNICEF, WHO and 20 organizations funded by the Bill & Melinda Gates Foundation which are leading the global Breastfeeding Advocacy Initiative. This initiative aims at changing exosystem and macrosystem structural factors such as improving support at work, and legislation related to the regulation of marketing messages of breastfeeding

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substitutes. However, still much progress and effort are needed to improve the low rates of breastfeeding.

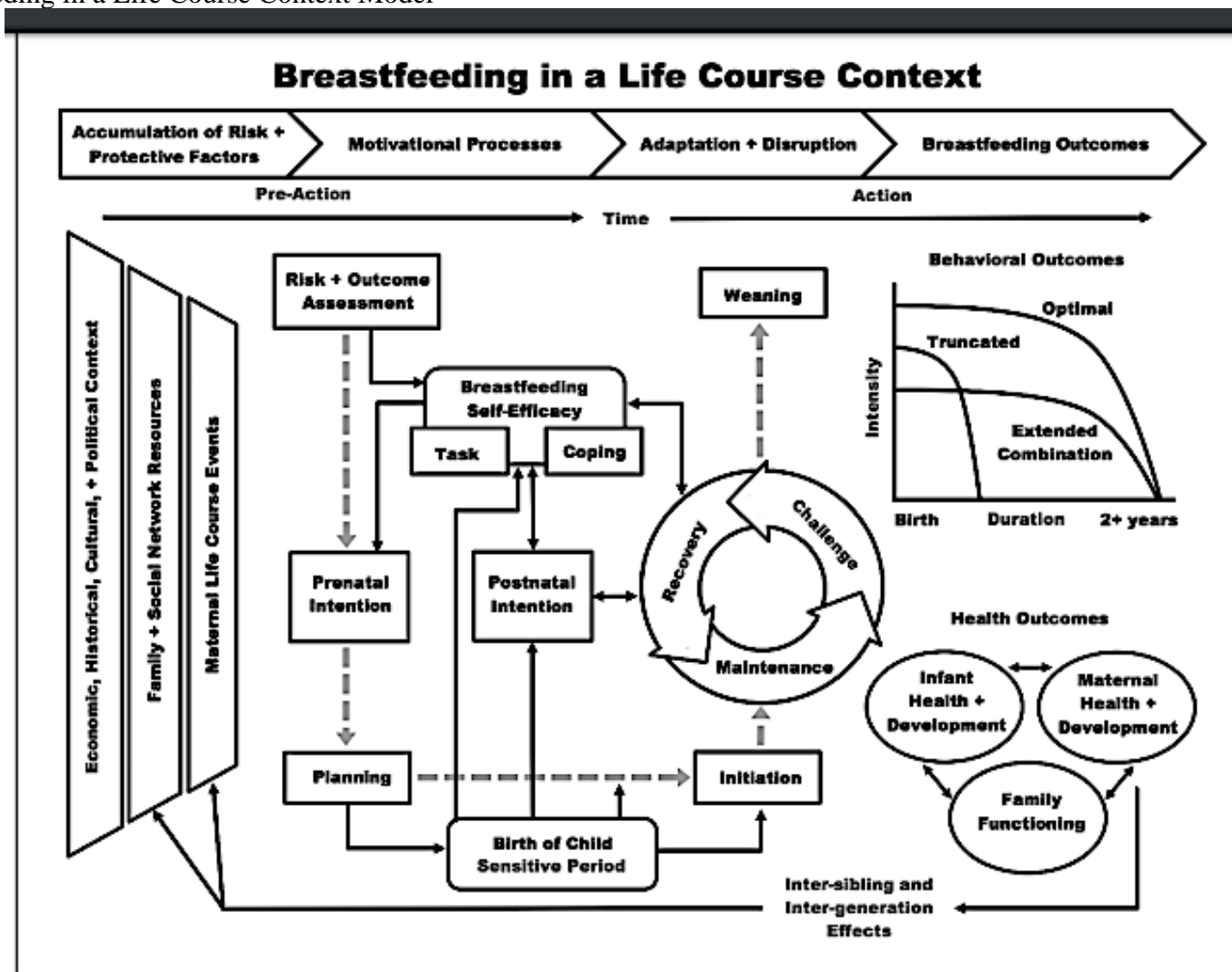
Dodgson (2018) writes about how grassroot initiatives with mothers have historically been effective in promoting breastfeeding, while structural issues that existed over decades ago are still present. She concludes that grassroot initiatives focusing on mothers need to continue (Dodgson, 2018) as structural barriers take longer to change. This suggests that both structural factors and personal factors can have an influence on breastfeeding.

McKinley & Hyde (2004) examined the two models; the personal attitude model and the structural model. Under the former model, they referred to the planned behavior theory and to a study by Barnes et al. (1993) that showed that mothers who link femininity to breastfeeding were more likely to breastfeed. Moreover, they investigated how some structural factors could be integrated into the personal attitude model given their influence on mother's attitude. For instance, they questioned whether social support meant influencing mother's attitude through her perception about advantages of breastfeeding, or the father's approval of breastfeeding, or redistribution of household chores (McKinley & Hyde, 2004).

Similarly, the life course theory developed by Whipps et al. in 2018 suggests that a mother's background and her context or social system influence her decisions and behaviors. Thus, the mother's experience and psychology are as important in her decision as to whether and how long to breastfeed, as her social system. It hypothesizes that a mother interprets information in the 'pre-action stage' according to her context, and then forms an intention about feeding her child (Whipps et al., 2018). Challenges are usually experienced during the maintenance stage, which can be physical pain, or psychological such as perceived insufficient milk, discomfort with nursing in public, or situational such as inability to express milk at work. At that point, the context will influence the mother's choice to wean or find solutions and continue (Whipps et al., 2018).

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Figure 4: Breastfeeding in a Life Course Context Model



Source: Whipps, D.M., Yoshikawa, H., & Godfrey, E. (2018). The maternal ecology of breastfeeding: A life course developmental perspective.

Factors Influencing a Mother's Decision to Breastfeed

Based on the life course theory developed by Whipps et al. (2018), both personal and structural factors can influence a mother's decision to start and continue breastfeeding. Personal factors include perceptions of the mother, her personality, and characteristics. These could influence her intentions and decision about starting breastfeeding, which is called 'pre-action' stage in the life course theory. Structural factors include support from family and medical care providers, common medical practices, information availability, public perceptions, and public policies. These could influence her decision regarding continuation when faced with difficulties.

Motherhood as a New Life Event

Motherhood is a transitional life event that involves many new decisions and behaviors given changing roles and identities for new mothers especially regarding infant feeding and its impact on their life and work (Whipps et al., 2018; Oosterhoff et al., 2014). In the Netherlands, interviews with mothers found a common theme where pregnant women hoped that breastfeeding would naturally work for them after delivery, and hence postponed learning about breastfeeding or planning for it (Oosterhoff et al., 2014).

Mother's Characteristics and Personality

Mother's self-efficacy, knowledge, and confidence have been associated with better breastfeeding outcomes (Brown, 2014). Such characteristics enable mothers to adopt a proactive stance towards solving challenges in initiating and continuing breastfeeding by asking for help (Brown, 2014). A study by McCarter & Kearney (2006) that examined self-efficacy found a correlation between self-confidence and perceived milk supply by the mother. A British survey found that certain personality traits for mothers such as being extroverted, emotionally stable, and conscientious mothers was associated with better breastfeeding outcomes (Brown, 2014).

Perceptions of Breastfeeding

An annual US Health Style survey about public attitudes toward breastfeeding revealed that 25.7% of the respondents in 2003 perceived breastmilk as good as formula compared to 14.3% in 1999 (Li, Rock, Grummer-Strawn, 2007). In another study examining the Health Style surveys, it was found that there were regional variations in perceptions about breastfeeding (Hannan., Li, Benton-Davis, Grummer-Strawn, 2005). The Pacific and Mountain areas expressed more positive perceptions of the benefits of breastfeeding, breastfeeding in public, support for workplace breastfeeding policies, and breastfeeding duration, whereas other areas knew about the benefits of breastfeeding but not the possible risks of formula (Hannan, Li, Benton-Davis, Grummer-Strawn, 2005). Perceptions of breastfeeding women were studied among European American college students and results supported hypotheses that perceptions were negatively impacted by sexualization of the breast, discomfort with sexual stimuli, and sexist attitudes (Forbes, Adams-Curtis, Hamm, White, 2003).

Natural Process versus Modern Medical Practices

Milk production starts during pregnancy until the first 7 to 10 days after delivery (Lauwers & Swisher, 2005). Natural practices such as skin-to-skin contact during the first hour after delivery helps in the natural flow of milk (Lauwers & Swisher, 2005). The baby is alert during the first hour and its sucking reflexes are strong especially during the first hour or two after delivery (Lauwers & Swisher, 2005). These early practices stimulate the glands and hormones that are associated with milk production (Lauwers & Swisher, 2005; Suskind & Lessen, 2011). They help stabilize the baby's temperature and breathing (Lauwers & Swisher, 2005). Frequent feeding thereafter leads to successful milk production; therefore, the baby needs to be in close proximity to the mother through rooming in (as per the ten steps

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for baby friendly hospitals) where the baby is kept in the same room with the mother (Lauwers & Swisher, 2005; Suskind & Lessen, 2011; UNICEF, 2017).

Unfortunately, with modernization of healthcare came artificial interventions that intruded on this natural process and became the common practice (Rollins et al., 2016). The baby is taken away from the mother after delivery to be cleaned, fed glucose, and put under the heater at the hospital then the baby is usually placed in a bed in a room separate from the mother. This interrupts the first bonding experience, interrupts the process of milk production, hurts the baby's gut and enlarges it, and makes the baby unsettled (Lauwers & Swisher, 2005). Accordingly, the breastfeeding experience becomes difficult and sometimes painful for both the mother and her baby since the baby finds difficulty latching on properly without hurting the mother's nipple ([David et al., 2007 & Brown & Jordan, 2012] as cited in Brown, 2014). Unfortunately, this is compounded by the lack of healthcare providers' knowledge on how to counsel and support the mother (Brown, 2014). This escalates breastfeeding difficulties and can cause her to give up breastfeeding early.

Medical and Social Support After Delivery

In 2018, an Australian study revealed that parents were put off breastfeeding because of the way nurses and health staff enforced their opinions and made them feel pressured (Hansen, Tesch, & Ayton, 2018). When the mother returns home, they get discouraged and worried especially when their baby's weight drops during the first week after delivery and they are unable to cope with early challenges. According to the American Academy of Pediatrics, it is normal for babies to drop up to 7% from their initial birth weight (Gartner et al., 2005). Lack of support especially led to early cessation of breastfeeding according to a study conducted with over 3,000 women in England (Oakley, Henderson, Redshaw, & Quigley, 2014).

Another common factor was lack of medical advice from the physician when facing lactation problems (Bishr, 2003; Abul-Fadl et al., 2012; El Shafei & Labib 2014; Emtair, 2016; Naguib, 2017). Health professionals don't study the prevention and treatment of breastfeeding problems in their education even in high-income countries (EU 2008; Renfrew et al. 2012). This results in a recommendation by doctors to supplement with one bottle, claiming that it won't affect the milk supply and will satiate the baby's hunger (Rollins et al., 2016). However, this practice leads to an interruption in the milk production process and hurts the baby's gut. In a study by Naguib (2017) conducted in Alexandria, 17% of mothers reported that nurses were the only source of support in breastfeeding not doctors.

Despite the implementation of BFHI since 2009 in Egypt, not all health facilities implement all ten steps. Hence, medical staff are not trained or motivated to support and guide mothers in starting breastfeeding as concluded by the baseline survey carried out in 2015 (Sadek et al., 2015). However, training and educating medical students resulted in improved knowledge and improved ability to support mothers initiate breastfeeding and handle difficulties (Fawzi, Kadry, Abd Rabo, & Abdul-Fadl, 2013; Sadek et al., 2015; Aboul Fetouh, El-Bakry, Abul-Fadl, 2015; Abdel Aziz, Kassab, Abdelnasser, Hosny, 2018).

Access to Information and the Decision to Continue

All the above factors lead to medical challenges to breastfeeding such as engorged breasts, fever, and sore and cracked nipples. Some women don't know that lactation consultants exist, others can't access them. The decision to stop breastfeeding is not easy as mothers feel guilty and helpless (Bolling 2007; Renfrew et al. 2012). Some mothers prefer bottle feeding due to perceived insufficient milk, experience of pain, returning to work, and fear of obesity and breast disfigurement (El Sayed, 2011; Hegazi Abdelaziz, Fahmy, Shaeer, 2015; Emtair, 2016). A common factor that influenced the decisions related to breastfeeding

was advice received from friends and families (Mahfouz, 2006; Adul-Fadl et al., 2012; El Gilany & Abdel Hady, 2014; Abdulla, 2016).

Peer Support

Peer support is informal support from mothers who have succeeded in breastfeeding. It allows mothers to interact, normalize the breastfeeding experience, and gain reassurance (Phillips et al., 2018). La Leche is an international initiative that grew from a local group of mothers in the 1950s to provide peer support, in addition to information and education about breastfeeding. This kind of support has shown to be more effective when started early and in face-to-face settings (Phillips et al., 2018). Phillips et al. 2018 study in the UK revealed the importance of acceptance and compassion in peer support intervention to help mothers continue breastfeeding. The same was confirmed in a systematic review and meta-analysis for the effectiveness of community-based peer support in low- and middle-income countries conducted in 2017 by Shakya et al.

Father's Support

A review of literature carried out by Bar-Yam & Darby (1997), concluded that research has consistently shown that father's support is an important influencing factor in the decision to breastfeed and its initiation. A US study of over 250 fathers concluded that fathers who did not know the benefits of breastfeeding preferred exclusive formula feeding, the same group had negative perceptions about the impact of breastfeeding on sex and the shape of the breasts. The study recommended including fathers in breast-feeding education programs, which may increase their support for their partners during breastfeeding (Freed, Fraley, & Schanler, 1992).

Another study in three states in America showed that fathers had empathy for their partners but were not sure how to offer their support (Avery & Magnus, 2011). This was also supported in a 2018 Australian study by Hansen, Tesch, & Ayton where fathers reported

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feelings of being unprepared, left out, unimportant, and unable to help their partners actively when experiencing challenges. Another American mixed method analysis concurs the importance of including fathers in educational interventions aimed at breastfeeding education to enhance their support (Dayton et al., 2018). Further, a systematic review by Tadesse Zelenko, Mulugeta, & Gallegos (2018) of low- and middle-income countries, revealed the significant impact of partners' support on breastfeeding intention and duration with improved outcomes for fathers who participate in educational programs. In addition, mothers' perception of fathers' attitudes played a major role in their decision to breastfeed (Wang, Guendelman, Harley, & Eskenazi, 2018; Freed et al., 1993). A study by Metwaly et al. in 2011 reported that social support from partners and extended family members was a major factor for the continuation of breastfeeding for working mothers.

Feeding in Public

In the United States, 154 structured interviews with mothers from an urban low-income multi-ethnic population revealed that their fear of social disapproval from feeding in public and from negative comments from friends discouraged them from breastfeeding despite knowing the benefits (Guttman & Zimmerman, 2000). In another study, fathers, even those who believed in breastfeeding, expressed a general lack of acceptance for breastfeeding in public (Freed et al., 1992). Also, in the United Kingdom, a review of comments made in the media after the Claridge's Hotel incident, where a woman breastfed in public at the luxury hotel in Central London, showed that people felt embarrassed and disgusted about the issue (Morris, 2016).

Public Policy and Interventions

According to UNICEF (2005, 2015), national governments do not do enough to 1) train health workers on breastfeeding; 2) implement legislation to enforce the international code of marketing of breast milk substitutes; and 3) create policies to ensure working

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women's ability to breastfeed (e.g. paid maternity leave, facilities and breaks at work for breastfeeding).

In Egypt, UNICEF (2005, 2015) and the Ministry of Health and Population in Egypt started an initiative to promote initiation of breastfeeding at the point of delivery at hospitals called the Baby Friendly Hospital Initiative. A Ministerial decree was released in 2014 that requires all private and public hospitals to abide by the ten steps of the BFHI that cover best practices in support of exclusive breastfeeding. The ten steps include training doctors and medical staff on educating and supporting mothers to breastfeed, in addition to 10 specific steps to be followed for a hospital to be designated as Baby Friendly. However, there is no hospital in Egypt, to date, that has implemented the ten steps or been accredited as Baby Friendly.

Another initiative that has been announced is an early prevention program called “first 1,000 days” (UNICEF, 2015), which would address pre-natal care, breastfeeding promotion, and nutrition counselling for pregnant and breastfeeding women. However, it is still in its early stages with general guidelines with no information about specific programs or planned outcomes.

Returning to Work

Working women worldwide as reported by UNICEF (2015), lack the support needed to continue breastfeeding upon returning to work. Working mothers face another set of challenges including restricted duration of maternity leave even if stipulated by law, and discrimination by employers in terms of availability of time and place to breastfeed or express milk. In their analysis of structural factors influencing breastfeeding, McKinley & Hyde (2004) refer to policies at work, health condition of mother/child, access to information and support. They specifically focus on how returning to work negatively impacts breastfeeding continuation. They found that mothers managed to breastfeed for longer when

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their institutions implemented a support program for breastfeeding (e.g. place and facilities to pump and store breast milk). Hence, they concluded that breastfeeding is a collective societal responsibility, not just dependent on mother's attitude but also on structural factors especially at work. In 2014, a study was conducted in Thailand to investigate the rates of breastfeeding after a support campaign at the workplace and enactment of the Mother-Friendly Workplace Initiatives by the World Alliance for Breastfeeding Action and the Thai government, and results showed significant improvement in breastfeeding rates (Yimyam & Hanpa, 2014). Finally, a study by Manal et al. (2010) showed that initiation and continuation of breastfeeding was higher for part-time mothers and those who had a longer maternity leave.

In 2010, the United States Breastfeeding Committee in the US Congress passed the Nursing Mothers Law that required employers to make necessary arrangements for mothers (time and space) to support their continuation of breastfeeding (Kozhimannil, Judy, Gjerdingen, & McGovern, 2016; Alb, Theall, Jacobs, & Bales, 2017). A study conducted to measure awareness of employers of such law found that large companies have higher odds of being aware of the law and implementing it (Alb et al., 2017). However, even the Convention on the Rights of the Child (CRC), Convention for the Elimination of all forms of Discrimination Against Women (CEDAW), ILO Convention No. 183 (2000), and Recommendation No. 191 (2000) on Maternity Protection, all which claim that breastfeeding is a collective responsibility have not been successful in supporting the practice of optimal breastfeeding (cited in IBFAN, 2012).

Media and Unethical Marketing Practices of Baby Food Industry

Breast milk substitutes were used in emergency situations such as famines and war, but then became unethically marketed as the normal nutritional food for all babies (IBFAN, 2012). Breast milk substitutes or formula producing companies market their products aggressively with global sales standing at USD44.8 billion in 2014 (Rollins et al., 2016). In

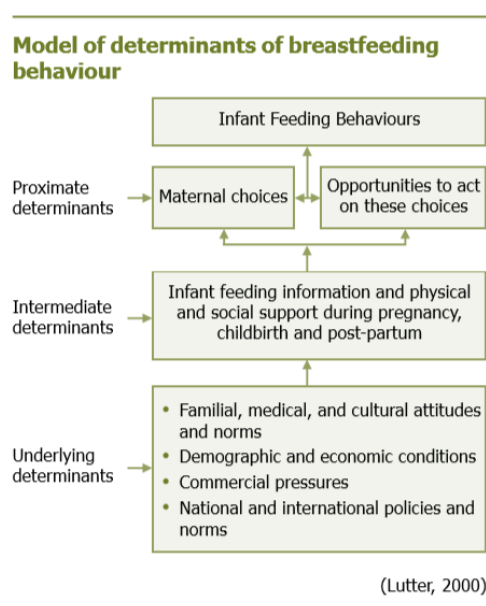
addition, the promotion of formula through the distribution of free or discounted samples, could influence mothers to buy and provide artificial feeding for her baby (Gartner et al., 2005). A British study (Henderson, 2000) concluded that the British media generally represented bottle feeding as less problematic with little information about the benefits of breastfeeding, which might have contributed to the UK’s low rates of breastfeeding.

The International Code of Marketing of Breastmilk Substitutes was formulated by the WHO in 1981 and revised in 2016 to guide member states in regulating the marketing of breast milk substitutes (WHO, 2018). Still violations of the code take place in health care settings and advertisements in public domains (WHO, UNICEF, IBFAN).

Research Question

It is clear that breastfeeding is an intervention that could contribute positively towards health promotion and disease prevention, social justice, and improved economic conditions in Egypt. However, breastfeeding initiation and continuation are influenced by personal and structural factors that may be responsible for Egypt’s low rates of breastfeeding. The factors influencing the mother’s decision are summarized below (See Figure 5).

Figure 5: Determinants of Breastfeeding Behavior (WHO, 2003)



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Research into breastfeeding in Egypt must account for the interplay between these personal and structural factors impacting a mother's decision and must also take into account the local context.

It is also important to examine not only breastfeeding initiation, but also continuation, as exclusive breastfeeding for six months, and then supplemented breastfeeding for two years is recommended for optimal outcomes. The focus in Egypt has been around promoting breastfeeding initiation, hence studies have focused on determinants and common practices related to initiation, and challenges for exclusive breastfeeding for the first six months. There is a research gap in Egypt regarding the ability to continue breastfeeding especially for middle income working mothers in urban areas, who – as shown by research in other developing countries – are most prone to using artificial feeding early.

The research question addressed by this study then, was what factors helped middle class mothers in Cairo form an intention, make a decision, and succeed in starting and continuing breastfeeding? In order to be able to use the results to develop cost-effective, sustainable, and culturally appropriate interventions, a positive deviance approach was taken with questions focusing on the specific strategies breastfeeding mothers used to overcome challenges they faced, and how their infant feeding choices impacted their lives.

Positive Deviance Inquiry in Public Health

A Positive Deviance Inquiry (PDI) was used in this research because of its prior success with community and public health issues (Marsh, Schroeder, Dearden, & Sternin, 2004). Since behavior change is an important factor in preventing malnutrition, an inquiry focused on positive deviants' behaviors can provide useful insights for promoting breastfeeding. Outcomes from the inquiry can then be used as a basis for an effective and sustainable grass root community intervention by other community members for improved

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breastfeeding practices. They can also inform interventions related to service delivery, social policies, and legislation change (Zeitlin, Ghassemi, & Mansour, 2011).

PDI is an asset-based, dynamic community approach that utilizes strengths and ‘local wisdom’ within communities, where the positive deviants are those who succeed in finding solutions to the same problem that others are facing despite having the same access to resources and living in the same cultural and social context (Positive Deviance Guiding Principles, 2017). Thus, the solutions are affordable and culturally acceptable within that community.

PDI is an approach that has been used since the 1970s in health-related research focused on child nutrition practices. In the 1970s, Joe Wray posed a question about learning behaviors and strategies from mothers in poor communities who succeeded in having well-nourished children (Berggren & Wray, 2002). He pointed out that practices adopted by those mothers could be taught to others within their local communities facing the same challenges. Later, Sam Wishik and Susan Van der Vynckt called those successful mothers ‘positive deviants’ (Berggren & Wray, 2002). Marian Zeitlin conducted research using the PDI and concluded that it can lead to successful interventions resulting in large-scale behavior changes within communities (cited in Berggren & Wray, 2002). During the mid- to late-1990s, programs based on the positive deviance approach were scaled-up, and positively impacted the lives of millions in developing countries (Marsh and Schroeder, 2002). The approach facilitates the process of information gathering, social collaboration, and behavior change (Marsh, Schroeder, Dearden, & Sternin, 2004).

Positive deviance was used in a study of first-time mothers in the USA. It concluded that breastfeeding practices shortly after delivery including assistance and education from staff in the hospital, were related to breastfeeding initiation (Magnus, 2012). Another PDI was done with working mothers in the USA who breastfed beyond one year, and a mix of

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inter and intrapersonal communicative acts were discovered. In summary, those mothers set a plan and options for issues arising before and after delivery to help them breastfeed including communicating the need for support to breastfeed from their husbands, caregivers and lactation consultant (Munoz & Molinar, 2015). Additionally, a PDI conducted in Pakistan to reduce maternity and infant mortality in 2010 helped in formulating messages from positive deviants to other community members regarding breastfeeding. Community members' engagement and use of such messages helped in instigating behavior change (Kim, Singhal, & Kreps, 2014).

PDI was implemented in Egypt through the initiative undertaken by Centre for Development and Population Activities (CEDPA) to change perceptions and behaviors related to eradicating Female Genital Mutilation (FGM) (McCloud, Aly, & Goltz, 2017).

Positive Deviance Methodology

According to literature on positive deviance, when implementing a positive deviance program community partners need to be involved in defining the problem, its causes and common practices, and articulate desired outcome (Positive Deviance Guiding Principles, 2017). The second step in a positive deviance methodology is identifying people who have achieved an unexpected good outcome despite high risk and discovering uncommon behaviors or enabling factors behind their positive outcome (Positive Deviance Guiding Principles, 2017). The third step is to identify which of the positive deviants' behaviors are uncommon and accessible to those who need to adopt them (Positive Deviance Guiding Principles, 2017). The fourth step is the design of behavior change activities to encourage community adoption of the new behaviors. And finally, the last step is to monitor implementation and evaluate the results (Tawia, 2016; Positive Deviance Guiding Principles, 2017; McCloud, Aly, & Goltz, 2017).

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An adapted version of the positive deviance inquiry method was used because of time limitations. Identification of the problem, common practices and outcomes were done through the literature review. Positive deviants were identified through a short survey and their behaviors were explored in semi-structured interviews. The interviews were analyzed to identify the uncommon and accessible practices, and then recommendations were made for potential interventions to encourage adoption of these practices by other mothers.

Methods

Participants

The target population was middle income mothers who had one or more children, and who breastfed their infants. Fifty mothers were approached; 10 were not positive deviants, two were in a hurry, and two refused to fill out the questionnaire or the consent form and refused to audio record. Three interviews were excluded because of the mother's low socio-economic class; they had no university education, lived in a rural area, and their income was less than EGP1,000. The remaining 33 mothers gave an oral or written consent, and either filled out the questionnaire or answered the questions of the questionnaire verbally.

All mothers were living in Cairo governorate with 21 in New Cairo, 8 in Heliopolis, and 3 in Nasr City and 1 in Maadi. The mothers interviewed were aged 20+ years with 55% in the age bracket of 30-40 ($n = 18$), 39% ($n = 13$) in the age bracket of 20-30, and only 6% ($n = 2$) over 40 years.

From the total sample, 42% ($n = 14$) mothers were first-time mothers, 36% ($n = 12$) had two children, and the remaining 22% ($n = 5$) had more than two children. Mothers weaned at various durations: three weaned at four months, seven were still breastfeeding their babies who were six months or younger, ten weaned when their baby was 12-20 months, and 13 weaned at 20+ months.

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Regarding their income, some participants asked whether it was their income or the family's income. So, the mothers answered the question assuming that it was asking about their personal income. All mothers had an income over EGP6,000 with 52% ($n = 17$) earning an income in excess of EGP10,000. Some of them didn't know how much income was earned by their husband, and some had a fixed allowance from their husband, so that was added up to their personal income and reported. The results are reported as answered. However, if the husband's total income would have been included probably some of the reported figures under EGP10,000 could potentially adjust upwards. In other words, the family's earned income is higher than reported. Except for one mother, the rest of the sample was equally divided into university graduates and postgraduates. That mother had a high school education but met the other criteria of a middle-income person. So, she was still included in the sample.

Out of the 33 mothers, six were housewives, five worked in the public sector, and the rest ($n = 27$) in the private sector. They worked as professionals; in administrative jobs, teaching, graphic design, engineering, pharmacy, physiotherapy, accounting, quality control, etc. The mothers who worked in public organizations and managed to negotiate flexible work arrangements than their counterparts who worked in the private sector. For instance, one of these five mothers went every two hours to breastfeed her son in a nearby nursery. The other four had a set number of tasks to finish regardless of when or where, had a set number of hours to be at the office, or worked three days per week for four hours.

Recruitment

In a pilot test conducted at a family health unit in New Cairo, the mothers were not very supportive of strangers or non-family members asking personal questions. There was some suspicion from mothers regarding the reason behind such an interview. However, when the researcher presented herself (accurately) as a volunteer in a non-governmental organization that works in the field of breastfeeding promotion, they were more relaxed about

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participating in the interview. Mothers in this study were recruited from family health units, sporting clubs, a pediatrician clinic, and a private university.

Materials

A mixed method approach was used, and quantitative and qualitative data was collected. The quantitative data was collected using a short-structured survey. The qualitative data was collected using a semi-structured interview.

Survey. The short survey (see appendix C) included a section about demographic information to understand characteristics of the sample studied, and another section about information that helped in the analysis of results and verifying information shared by mothers in the interview. The demographic section included questions about the following: name, age, income, level of education, area of residence, number of children and ages, hospitals where delivery took place, work, and intended/actual length of maternity leave. The following section included questions about pre-action factors such as the mother's intentions about her infant feeding and the actual feeding behavior, first interaction between mother and infant, support system, and factors during the maintenance stage such as perceived child's health, and impact on mother's life. It helped in understanding structural factors such as common medical practice.

Semi-structured interview. Open ended questions facilitated discovery of factors that influenced the mothers' decision regarding their infant feeding choice (see Appendix D). The flow of questions was meant to facilitate the sharing of their stories to understand their decision-making process from the pre-action stage to the maintenance stage.

Question 1: Tell me more about your infant feeding experience.

Follow up question: What motivated you to start? and what motivated you to continue breastfeeding?

The following questions could be asked in case she doesn't bring it up:

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Question 1: When was the first time you thought about infant feeding, and what did you think about it?

Question 2: How did you decide about your infant feeding choice?

Follow up questions: What was your plan regarding feeding your infant? Who was your reference? Who helped you reach a decision?

Question 3: What challenges did you face? How did you deal with them? *Or How did you overcome any challenges and make your breastfeeding experience successful?*

Follow up questions: How did that (*behavior stated by the mother*) make you feel?

Prompt – if the answer was support: Who? What did s/he say?

Prompt – if the experience was differences in places (public versus private)/around certain people (family versus friends)/events (returning to work): How different was it?

Prompt – if reading and knowledge helped her: What information helped you? Which resonated more with you?

Question 4: What other thoughts would you like to share?

Question 5: If you to talk to a new mother, what would you share with her to encourage her to breastfeed her baby?

Challenges. In case the mother was still breastfeeding, the baby was attending the interview. Some babies were fussy or noisy, which sometimes disturbed the flow of the conversation with the mother. She would stop and breastfeed or, when they were older or had older siblings, she would ask them to let her continue talking. This interruption was accounted for by buffering extra time.

Procedures

The interviews were conducted in family health units, sporting clubs, a pediatrician clinic, and a private university. Non-randomized, convenience and snowball sampling were used. Mothers with babies were approached by the researcher and asked if they were

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breastfeeding or have breastfed within the last 2 years, then they were asked about their willingness to participate in the interview. At the end of the interviews, mothers were asked to refer others who might be interested in sharing their story. Out of the 33 mothers, 12 were referred by their friends and colleagues.

Interviews varied in length from 20 to 40 minutes, in addition to 15-20 minutes of briefing and rapport building, reading and signing the consent form or recording it, and filling out the questionnaire. After finishing the interview and shutting off the audio recorder (when it was used), mothers usually would carry on for further five to 10 minutes of an informal discussion to verify information about breastfeeding and nutrition, or to elaborate on their story or feelings. Mothers who breastfed more than one child expressed their interest in helping new moms through sharing their experience and advising them on how to handle difficulties.

The initial building of the rapport was important in helping the mother ease into the process and feel safe to share her story. So, at the beginning the researcher thanked the mother for agreeing to participate in the interview. Then she was reassured about the confidentiality of the information that she would be sharing during the interview and her ability to withdraw from the interview if she felt uncomfortable. Then the purpose and scope of the interview was explained (i.e. understanding factors influencing mothers' infant feeding choice), and the expected length of the meeting (90 minutes). The mother's permission for audiotaping the interview was sought, and she was given the choice to select a fictitious name to be used during the interview for audiotaping. The consent form was introduced and signed by the mother before beginning the interview. In many cases, an oral consent was recorded due to the mother holding the baby or breastfeeding or swinging the baby in the play area.

The researcher's role was more of a facilitator; working with the mother to explore and understand her story and experience. Active listening was used throughout the interview,

in addition to asking clarifying questions, paraphrasing, reflecting, and summarizing to make sure the mother was understood correctly.

Data analysis

After the data was collected, it was transcribed from Arabic into English. Then the main categories or themes were identified and extracted using thematic analysis. Thematic analysis is an analytical approach used to identify patterns in qualitative data (Clarke & Braun, 2013). It is useful in highlighting people's experiences and representations that they construct around their context. First the interviews were transcribed from Arabic audio recordings and notes into English. Then transcriptions were carefully read to identify the following codes: what constituted a barrier or challenge, what represented a positive deviant strategy, personal factors and contextual factors. Then themes emerged from the codes in the interview stories shared by mothers. There were three major group of themes identified under contextual barriers, another set of three under personal barriers. Then another set of three groups were identified under both the strategies for contextual and personal barriers separately, and two themes under strategies for both contextual and personal barriers. The themes' names were revisited to make sure they reflected the information contained under it. Finally, in the write up an explanation of the theme was integrated and linked with the interview extracts to present the story.

The survey data was inserted in an excel sheet where the individual responses were inserted as a row and the column heading was the question. This helped in calculating the frequencies, percentages, and to produce charts representing the data.

Results

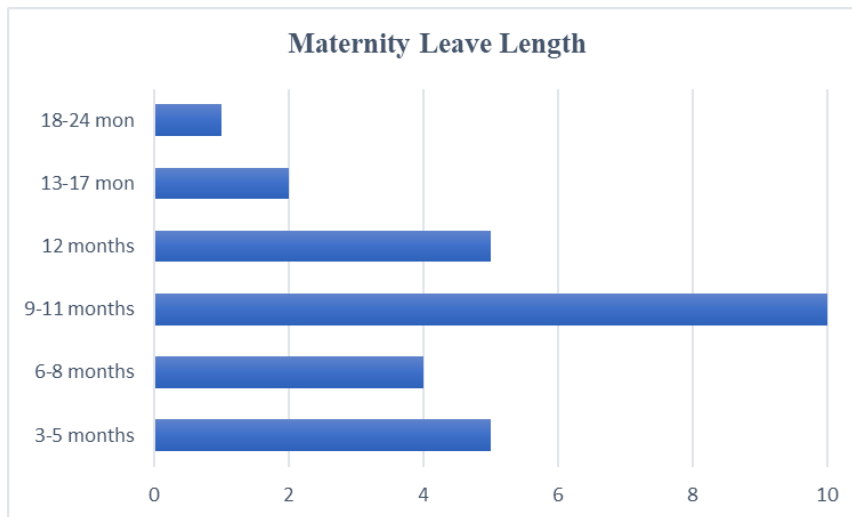
Survey

Maternity leave length. According to Egyptian law, mothers have the right to three months paid maternity leave, and up to two years of unpaid leave (if the employer has more

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than 50 employees), and an hour of nursing break (until the child is 24 months) as per the Egyptian Labor Law (Saleh & Partners, 2016). The survey found that 33% ($n = 9$) of the mothers were permitted up to 9 months of maternity leave, 37% ($n = 10$) managed to take up to 11 months, and 30% ($n = 8$) negotiated extending their leave one year or more.

Figure 6: Maternity Leave Length

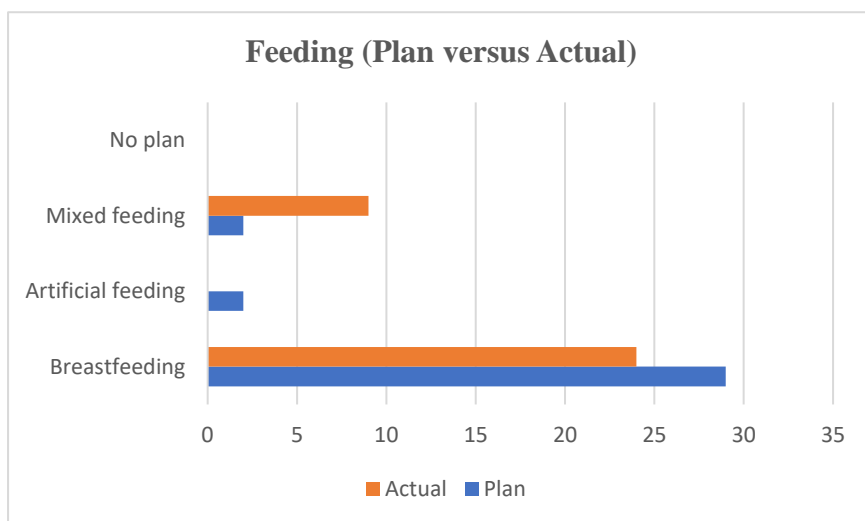


First contact with baby. Mothers who saw their baby within the first two hours represented 76% ($n = 25$), the rest either saw the baby later during the first day ($n = 4$) or on the second day ($n = 4$).

Plan versus actual feeding. One mother intended to give artificial feeding, but she ended up breastfeeding, and another planned on mixed feeding to be able to return to work. Ninety-four percent of the mothers ($n = 31$) intended to breastfeed only, but 27% ($n = 9$) resorted to mixed feeding, which means that they complemented breastfeeding with formula at some point.

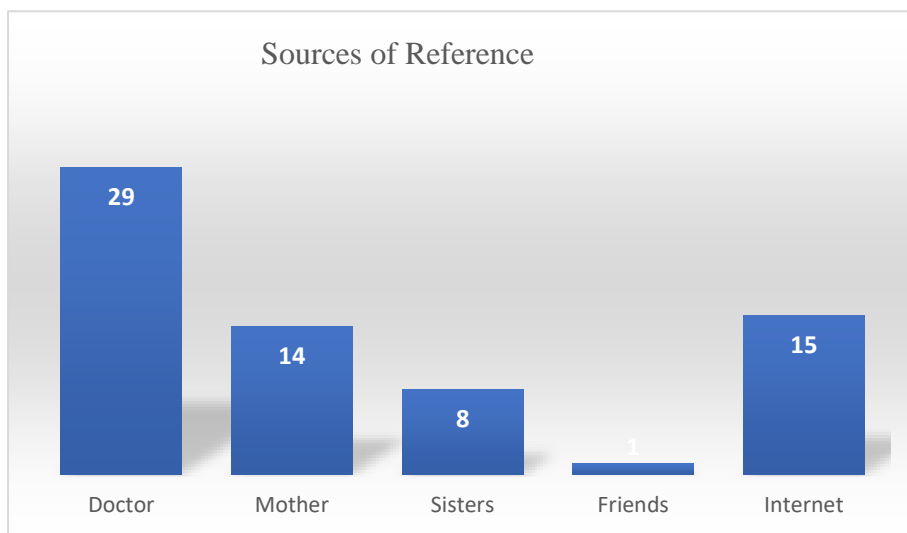
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Figure 7: Feeding Plan (intention) versus the Actual Feeding (behavior)



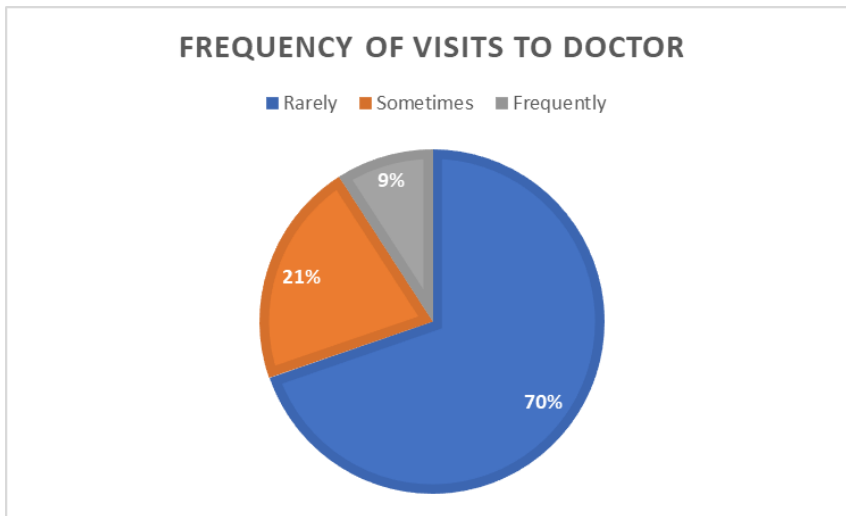
Sources of information and support. Mothers reported different sources of information and support for breastfeeding. The most common was their doctor ($n = 29$), then virtual communities ($n = 15$) followed by their mothers ($n = 14$). Other sources of support included informal family support groups ($n = 9$), sisters ($n = 8$), and friends ($n = 1$).

Figure 8: Sources of Reference for the Breastfeeding Mother



Frequency of visits to doctor. Mothers were given three choices in the survey about the frequency of their baby's visits to the doctor. Those who rarely visited the doctor due to illness represented 70% ($n = 23$), whereas 21% ($n = 7$) visited the doctor due to illnesses from seasonal changes, and only 9% ($n = 3$) frequently visited the doctor every month or so.

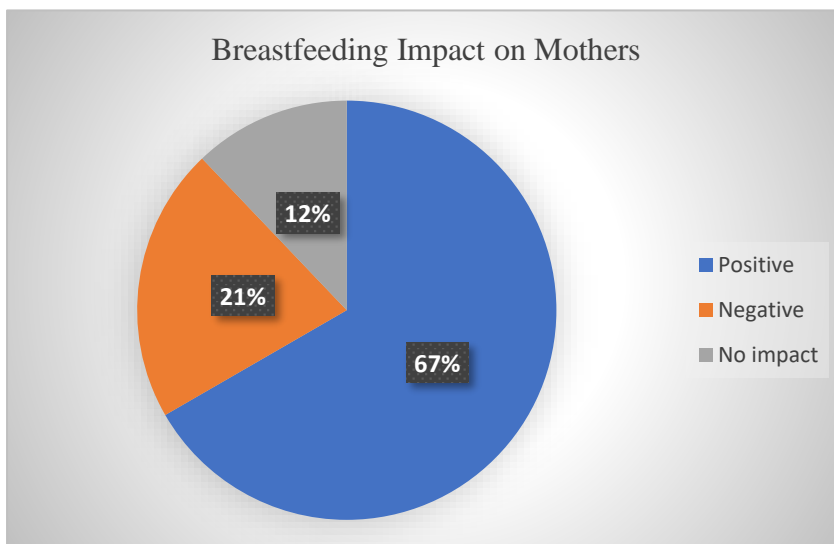
Figure 9: Frequency of Visits to the Doctor



Perception of mothers regarding the impact of breastfeeding on their lives.

Despite the challenges faced by mothers, 67% ($n = 22$) reported the impact of breastfeeding as positive. However, 21% ($n = 7$) reported that breastfeeding had a negative impact on their life, and 12% ($n = 4$) were neutral.

Figure 10: Perception of Mothers Regarding the Impact of Breastfeeding on their Lives



Interview

In their interviews, mothers shared that breastfeeding was physically and emotionally challenging. The interviewed mothers faced contextual and personal barriers that challenged

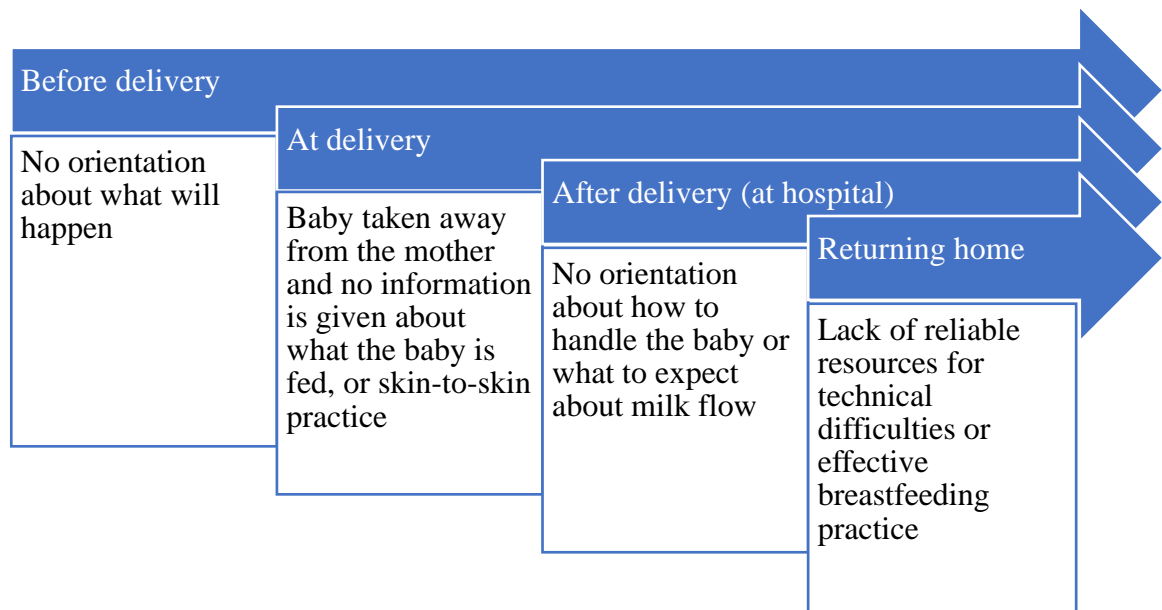
their planned decision to breastfeed. However, they implemented specific strategies that enabled them to succeed despite these challenges.

Contextual barriers. Three major groups of themes that related to contextual barriers were identified: lack of knowledge; cultural beliefs and practices; and institutional practices.

Group 1: Lack of breastfeeding-specific knowledge in support system. People in the mother's support system lacked technical knowledge about how to prepare her for breastfeeding when pregnant, during delivery at the hospital, or afterwards when she started facing difficulties. Sometimes, the advice itself was confusing and contradictory. A doctor would tell her to breastfeed frequently, then her mother would tell her that she must schedule the baby's feeds. Family members would encourage her to breastfeed while her peers at work would encourage her to complement with formula. Also, hospital staff would take the baby away after delivery and give the baby a pre-lacteal feed without getting back to the parents. This lack of technical knowledge in the support system led to practices that complicate the breastfeeding experience for mothers.

Theme 1: Knowledge of initial practices and expectations. The first information gap was before and at delivery as there was no orientation or information at the hospital about what would happen during delivery or after it. First-time mothers reported a lack of understanding of what would happen; "I was crying before delivery; terrified, worried, anxious, I didn't know what would happen." The interviewed mothers also reported not being told that the baby would be taken away and nothing was communicated about the skin-to-skin practice.

Figure 11: Timeline of Identified Information Gaps



All mothers reported that breastfeeding was harder than they expected. They reported that the baby didn't know how to hold the breast; "It was very difficult; I didn't expect that at all. I thought that I would deliver and automatically start breastfeeding." Two thirds of the mothers (60%) had a caesarian delivery and mentioned in the interviews that they had pain from the operation in addition to the pain associated with breastfeeding. After delivery, no informational support was provided on how to hold the baby and latch her/him on; "I didn't know how to hold the baby, no one showed me."

In addition to that, first-time mothers were unaware that colostrum was a form of milk and that milk in its white form takes time to start flowing especially with a caesarian delivery; "They need to tell new moms that they may not find milk at the beginning. I had very few drops, then after two weeks I had a strong flow of milk." Instead, mothers doubted their ability to produce breast milk and perceived it as insufficient for the baby. This led 30% of first-time mothers ($n = 10$) to complement with breastfeeding; "On the first day I tried breastfeeding and there was no milk. On the second day I gave her formula and she drank it and was happy."

Theme 2: Lack of reliable technical information about breastfeeding practices after delivery. The second information gap was after returning home. Mothers did not know how to handle technical difficulties of breastfeeding especially nipple pain, cracks, infections, and bleeding, as one said; “I had severe pain and cracks especially with my first baby; it was a shock.”

Doctors did not provide information about the practice of breastfeeding such as effective latch on and how to position and hold the baby to prevent the above-mentioned difficulties. As shared by all the mothers, doctors would follow up on the baby’s growth and health, encourage breastfeeding without specific advice about handling its technical difficulties.

Forty percent of mothers ($n = 13$) reported that their mothers (who will be referred to as grandmothers) were not a reliable source of technical information even when they were pro-breastfeeding and knew that it was beneficial; “my mother’s information was old and outdated.”

Group 2: Cultural beliefs and practices. Many cultural beliefs and practices do not support breastfeeding. There are cultural beliefs about milk being a gift bestowed by God, and another about equating health with chubbiness. Gender roles and breast sexualization emerged as another set of disabling cultural beliefs. Also, the practice of overfeeding the breastfeeding mother was deeply rooted in the culture.

Theme 1: Cultural belief about bestowment. Nine percent of the mothers ($n = 3$) attributed breast milk insufficiency as God’s will, “If you don’t get milk, then know that it is what God bestowed (rizkaha¹).” They reported that the concept was used by family members who attributed the baby’s crying to a perceived inadequacy of the mother’s milk. One mother

¹ The words mothers used in Arabic were deep and authentic. It was difficult to find words that literally translate the exact meaning expressed in Arabic. So, in the stories stated below the same word in English was used to try to approximate the meaning of different Arabic words used by the mothers. The Arabic words are put in brackets as a reference.

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shared: “People say to me why are you stubborn about complementing; you don’t have enough milk and the girl is crying a lot; you are starving her, and it’s a bestowment (rizk).”

Theme 2: Cultural belief about health. People think that a chubby baby is a healthy baby. All mothers reported that they were annoyed with comments that their breastfed babies were not chubby and looked thin, which was equated with being a ‘weak’ baby.

Linguistically, in the Arabic language, the word for thin can be anonymous to weak ‘da3eef’. In 30% ($n = 10$) of the interviews, the pressure was to give formula due to perception of the baby as thin; as one mother stated,

There is always this pressure from the family to introduce formula given that she looks very thin and isn’t chubby like her elder sister. Her elder sister was totally breastfed for the full two years without any complementary feeding. So, I get worried from those comments.

Theme 3: Gender roles. Traditional gender roles were another cultural obstacle where fathers were the main income earners; worked for extended hours and were too exhausted to help with the baby or were working abroad and returned only on holidays to see the baby as shared by the mothers. This role meant their lack of involvement in parental responsibilities including infant feeding decisions or supporting the mother implement her decision. Only 21% ($n = 7$) mothers stated that their husband was encouraging them to breastfeed, whereas 70% ($n = 23$) stated that the husband had no opinion or was neutral, and 9% ($n = 3$) were not happy and wanted the mother to complement.

Even when they were around, husbands didn’t know how to help and how to handle the baby. Children were mainly the mother’s responsibility; “He wanted to return home to eat and sleep. He would say as you like; natural and artificial – just as long as he is not crying.”

Theme 4: Sexualization of breasts. Views of breasts as sexual made three mothers (nine percent) feel embarrassed to feed in public or in front of others; as one described, the

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“most challenging part was feeding in front of people; baby crying, and everyone is looking even with the nursing cover.” This was further complicated when the father rejected the idea of his wife breastfeeding in public; “My husband wasn’t comfortable at all with me breastfeeding in public.”

Theme 5: Cultural practice of overfeeding the breastfeeding mother. Milk production was culturally associated with eating heavy meals and sweets such as sesame sweets (halawa) and having sugary drinks. These sometimes led to gaining weight and mothers’ feeling bad about their body image and blaming it on breastfeeding, “I had to eat to increase my milk supply. I gained a lot of weight and feel heavy even my knees and bones hurt.” Nine percent ($n = 3$) of the mothers reported putting on weight due to feeling hungry all the time and eating the commonly known options that are associated with increased milk flow.

Group 3: Institutional practices. Most institutions interacting with mothers, such as hospitals, workplaces, and public spaces, have common practices that do not support breastfeeding.

Theme 1: Hospital practices. Only 36% mothers ($n = 12$) reported seeing their baby immediately within the first two hours. The remaining 64% of mothers ($n = 21$) saw the baby by the end of the first day or the following day. It was common practice to introduce the baby late to the mother and explain only if she asked; “I wanted to see the baby, but they told me he was being bathed and put under the heater as a normal procedure.” It was also common practice for hospitals to give pre-lacteal feeds to the baby as reported by mothers. Three mothers shared that they were given an extra supply; “they gave the baby glucose and upon leaving the hospital, they gave me glucose and a syringe.”

Theme 2: Workplace policies. Returning to work meant the mothers had to start early complementing with formula or introduce food to be able to leave their baby for longer hours. Mothers who worked in the public sector 19% ($n = 5$) had a longer process to get approvals

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for their maternity leave but they got it eventually, however their counterparts in the private sector had difficulty getting approval for the two-year leave that is stipulated by the Labor Law. Almost 15% of the mothers interviewed ($n = 4$) weaned before six months due to returning to work and feeling stressed, tired and exhausted; “Returning to work was a problem. I only managed to take six months maternity; she was very small and dependent on breastfeeding.” Even when returning to work, it was not easy for mothers to pump milk to avoid breast engorgement and pain and the drying of their milk supply; as one stated, “there was no place to pump. I had to do it in the bathroom.”

Theme 3. Public places. Facilities for breastfeeding in public places were difficult to find. Three mothers reported that they had to breastfeed in bathrooms due to unavailability of discrete places to feed in.

Personal barriers. Three major groups of themes that related to personal barriers were identified: lack of mother’s knowledge; being unprepared for the role; and experiencing negative emotions in response to difficulties.

Group 1: Lack of mother’s knowledge. Mothers’ lack of awareness about important issues related to breastfeeding complicated the experience and made it more challenging.

Theme 1: Knowledge about healthy eating. In total, 18% ($n = 6$) of the mothers explained that they had a low milk supply given their unhealthy eating habits during pregnancy. Mothers didn’t know that the quality of food consumed during pregnancy affected their ability to breastfeed and the quality of their milk; “We depend too much on fast food, takeaway, drink too much coffee, and don’t eat enough vegetables and fruits.”

Theme 2: Knowledge about benefits. Mothers were unaware of the benefits of breastfeeding for their child in the second year; “I felt it wasn’t useful; its color changed, and he started depending on food more. It was like water, so I felt its wasn’t nutritious.” Over 90% of the mothers interviewed ($n = 30$) were unaware of the benefits of breastfeeding for

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themselves; only 9% ($n = 3$) knew that it could help them recover from delivery, lose weight, and prevent cancer.

Theme 3: Knowledge about responsiveness. First-time mother who represented 42% ($n = 14$) did not understand their baby's crying and that it was normal to feed the baby on demand and frequently during nighttime; "he wakes up all night – every half an hour to breastfeed - unlike formula he would take a bottle and sleep for 3-4 hours." Instead mothers attributed this to their insufficient milk supply and interpreted it as a sign of hunger and they got anxious about the baby's survival; "she kept waking at night so she was hungry and my milk was not enough; I felt my breasts were empty so I assumed my milk wasn't enough."

Theme 4: Knowledge about practical issues. All mothers did not know what to wear while breastfeeding their first baby especially in front of others or during outings; "I had a problem with the clothes and their practicality in breastfeeding." The unexpected challenge of practical outdoor clothing seemed to come up with all mothers who were keen on going out and about as usual.

Group 2: Being unprepared for the role. Mothers discovered the nature and extent of their responsibilities of their new role after having the baby. Even second time mothers discovered that there are multiple needs to be addressed related to the elder siblings in addition to breastfeeding the new baby. The word "responsibility" was repeated in multiple stories; "New moms need to understand that having a baby is a responsibility, but not to think that her life ended, she should instead to look at it as a new phase." First time mothers took time to fully understand their responsibility; as one said, "I left the hospital without my baby. My mother reminded me. At night, I kept breastfeeding and checking on her and that was when I started feeling that I am a mother and totally responsible for her."

Group 3: Experiencing negative emotions in response to difficulties. All mothers reported that breastfeeding was a very difficult experience; "I would advise new moms not to

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give up (teyas); it is a phase of huge disappointment - you expect something, and it turns out something totally different. Also, the hormonal changes can make you depressed.”

All mothers felt vulnerable on both the physical and psychological level. Almost 60% ($n = 20$) mothers experienced technical difficulties that made them unable to breastfeed directly; they had to express their milk and give it to the baby. Those mothers were afraid about not being able to resume breastfeeding and doubted that their ability to continue to produce milk: “I had fears especially that nobody in my family breastfed; especially my mom and her sisters. I was always on guard for a problem to arise.”

Thirty percent of the mothers ($n = 10$) reported that others’ pressure about ‘having to breastfeed as their duty’ or ‘not putting in enough effort’ was the second worst aspect about breastfeeding after the physical pain. The way family members and doctors spoke with them using scare tactics or blame and judgement made them feel guilty and frustrated; “So, for me my milk flow was weak, and everyone blamed me.”

Nine percent of the mothers ($n = 3$) shared their annoyance when the mother-in law exerted pressure through their son to force complementing with formula ; “I can control my family and what they say, but not my in-laws and the pressure they made my husband put on me to introduce formula.” Only six percent mothers ($n = 2$) mentioned that their mother-in law was supportive of breastfeeding and praised their effort. The remaining 85% ($n = 28$) of the mothers didn’t mention their mother-in-law.

To overcome the challenges and barriers they faced, positive deviant mothers used the following strategies:

Strategies directed at contextual barriers. Three major groups of themes were related to the strategies directed at overcoming contextual barriers: mothers’ insistence on meeting their needs; scrutinizing advice from others; and seeking help and encouragement.

Group 1: *Insisting that their needs be met.* Mothers demanded access to positive practices at the hospital from their doctor and medical staff, compassion and support at home from their family members, and extended maternity leave/work arrangement at work from their employers.

Theme 1: Insisting their needs be met at the hospital. Mothers with a second child, 58% ($n = 19$) arranged with their doctor before delivery and gave clear instructions to the medical staff to see the baby immediately and do skin-to-skin contact. In total 76% ($n = 25$) saw their baby within the first two hours. Four percent of the mothers ($n = 12$) managed to do skin-to-skin contact with their baby. They reported an overall easier breastfeeding experience; “The second child was a different experience. I demanded to breastfeed her immediately to induce breast milk quicker. I felt the milk flow was stronger. But with first child, he was never filled up and the doctors prescribed formula.” One mother demanded rooming in to ensure that the baby was not given anything other than her breast milk.

Theme 2: Insisting that their needs be met at home. Mothers wanted their family to be more compassionate and respecting of their needs. From their stories, 42% ($n = 14$) asked and confronted any family member who spoke to them harshly by explaining how vulnerable they feel, 9% ($n = 3$) asked their husband to talk to his mother, and 30% ($n = 10$) simply ignored the negative pressure. As one mother stated, “No one should interfere. Everyone has different circumstances, and people shouldn’t pressure the mom. She already feels guilty and is so vulnerable to negative comments.”

Theme 3: Insisting that their needs be met at work. Sixty three percent of twenty-seven working mothers ($n = 17$) negotiated extensions of their maternity leave to be able to breastfeed longer. Mothers’ exhaustion from night feeds was overcome by negotiating flexible work arrangements or extending maternity leave length. In fact, 20% of the mothers ($n = 6$) felt that returning to work gave them the personal space and assurance they needed to

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be able to tolerate their crying baby. Returning to work was a positive factor in improving mother's mood and helping her attend to her baby especially when there was no or negative support from the family and the husband: "I was alone; family lives in another city, husband returns late. I couldn't tolerate it. I returned to work; something for myself, saw others, missed him, and was able to give him attention."

Group 2: *Scrutinizing advice from others.* The positive deviant mothers didn't take advice as is, they had to verify it by themselves through asking experts and educating themselves by reading.

Theme 1: *Questioning advice from doctors.* All the mothers sought doctors who encouraged them to continue breastfeeding, unless the doctor medically proved the baby's need for complementation; "When the doctor insisted on introducing formula despite my baby's good health and weight compared to the health chart, I didn't like it. I went to another doctor who supported my decision to continue breastfeeding."

Theme 2: *Questioning advice from relatives.* Mothers questioned the advice they were given by their own mothers and instead consulted with other relatives who recently breastfed about technical breastfeeding issues. These informal support groups were reported by 27% ($n = 9$). The mothers felt that the relatives had more up-to-date skills and technical knowledge compared to the information their mothers had provided.

Group 3: *Seeking help and encouragement.* Finding at least one person to help was an important positive factor that enabled mothers to succeed. All mothers shared that it was necessary to cut herself off from negative people and surround herself with a community that supported and encouraged her, or at least didn't blame or judge her. One mother shared; "I prayed God to give me strength and looked for a support system; a community that wouldn't pressure me, even if there is just one person to encourage it will suffice."

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Theme 1: Family support. Family support was mentioned in the interviews where 42% ($n = 14$) were encouraged or supported by their mother (i.e. grandmother) and 25% ($n = 8$) by their sisters. Mothers reported that they stayed with their mothers until they healed and recovered from the pain and exhaustion of delivery. Their mothers helped and encouraged them to cope with breastfeeding; “She would tell me take a rest and try again, and check on me and remind me: did you put on the ointment, and take the medication? She advised me to keep trying and not to give up or take a shortcut.” They were also a source of influence regarding the benefits of breastfeeding; “My mother said, if you want him to be intelligent and healthy then breastfeed him.” The grandmother or sister also helped in comforting the baby (holding, changing or bathing), caring for older siblings, and cooking meals, “My sisters showed me how to hold my baby and handle him (bathing, feeding, etc.).”

Theme 2: Support of husband. The husbands, according to 21% ($n = 7$) of the mothers, helped when asked in handling the elder siblings to enable the mother to breastfeed or rest. They also helped the mother go out by carrying things. One mother saw that she wouldn't have made it without her husband's help. The other mothers saw that the husband encouraged them to breastfeed without pressuring them. One mother shared; “He's a pharmacist, he was worried about both of us and he saw how difficult and challenging it was, so he didn't pressure me and stood aside observing and didn't know what to do.”

Theme 3: Support of doctor. It was repeated by 88% ($n = 29$) that the doctor was a trusted source and authority figure for both the mother and father. Positive deviant mothers visited the doctor regularly during the first month to seek assurance from the doctor about the baby's growth. The doctor's common advice was to “eat well, drink plenty of fluids and frequently breastfeed them so that the factory works.” Mothers felt so happy when their doctor praised their effort, “he told me I was doing a good job and gave me assurance about the quality of my milk as my baby was growing.” Also, mothers who reported having

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medical issues that prevented them from breastfeeding their baby e.g. baby in incubator or their illness, kept hand expressing their breastmilk as per the doctor's advice. Thus, they managed to continue.

The doctor's opinion influenced the father's decision about the need for complementing. Ten percent of the mothers ($n = 3$) reported that the father became more tolerant of the baby's crying after the doctor's assurance that the baby was within normal growth range and didn't need complementation.

Theme 4: Support from lactation consultants. Although they did not use lactation consultants themselves, four of the mothers reported hearing about lactation consultants after they passed the difficult part of their breastfeeding experience. As a result, they recommended that new moms make use of them; "My friend went to a lactation consultant and she helped her from the beginning."

Strategies directed at personal barriers. Three major groups of themes were related to strategies directed at overcoming personal barriers: mothers' curiosity and openness to learning; positive perceptions of breastfeeding; and adapting positively to motherhood.

Group 1: Curious to learn. Mothers learnt through reading and online research, or through their previous experience with their first baby.

Theme 1: Learning online. Mothers used the internet to learn about breastfeeding as reported by 46% ($n = 15$). They shared that online videos helped them with the technical difficulties by showing them how to latch on and position the baby. Mothers learned about the benefit of breastfeeding from reading online; "I used to read on the internet about the benefits of breastfeeding and I was blown away with the benefits - it helps their brain formation and development!"

Theme 2: Experimentation. When faced with issues regarding low milk supply, all mothers experimented until they found what worked for them, "I researched the topic of

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breast milk supply and it was huge. I decided to experiment with different things and notice myself. So, I discovered that soup and sleep increased my milk.”

Theme 3: Experience. Thirty percent ($n = 10$) of the interviewed mothers stated that their experience with pain during natural delivery helped them tolerate breastfeeding. Also, experience gained with their first child helped them breastfeed their second child for an average of 10 months (range = 3 to 18 months) longer as reported by five mothers. They knew what best worked with their pain, how to hold the baby and properly positioning, “the child refuses the breast at beginning, there is some pain; but that’s until he gets used to holding it, then it becomes natural.”

Group 2: Positive perceptions of breastfeeding. The positive perceptions were repeatedly mentioned by all mothers throughout their story; perceiving it as a gift from God, in addition to being natural, convenient, beneficial, and a unique way to bond with their baby.

Theme 1: A gift bestowed by God to the child. The word bestowment; a sacred spiritual gift (rizk) was repeated in all of the interviews. Mothers shared a strong belief that breast milk was a gift bestowed from God to the child; “It is her gift; why prevent it if it is there and I can give it to her? Everything that God created naturally is the best; there is nothing superior to natural milk. It is her right.” They believed that it was naturally sterilized and nutritious especially formulated to promote the child’s immunity; “I think that God created the human milk as would best suit each child’s needs.”

Theme 2: Breastfeeding is a natural process. Positive deviant mothers viewed breastfeeding as the superior option since it was the natural choice for a baby’s food; “normal food for a normal baby.” Three mothers were puzzled by my question as if having another plan was out of the question; “It is a natural meal. Breastfeeding is a natural process – inside every mother.”

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Theme 3: Breastfeeding is convenient. Thirty mothers (91%) saw breastfeeding as convenient. It was available for free, anywhere at the right amount and temperature saving them from the hassle of cleaning and sterilizing, and spending money on something that may not be the most nutritious. It helped mothers overcome the challenge of night feeds especially when they learned about co-sleeping and breastfeeding while lying down in bed beside the baby without having to get out of bed and carry the baby.

Theme 4: Awareness of breastfeeding benefits. Overall, mothers knew that breast milk was the most nutritious source; “I read a lot. I was convinced and that was my intended plan: 100% breastfeeding.” All mothers stated that ‘immunity’ was the main reason behind their intention and determination to breastfeed. About third ($n = 10$) of the mothers mentioned that brain development was the second main reason they breastfed. Another mother felt that “Breastfeeding had no sugar like artificial milk, so it could have helped later in my baby’s acceptance of vegetables and eating healthy.”

Theme 5: Bonding with and nurturing the baby. When they were asked about how they felt when they are/were holding their baby and breastfeeding her/him, all of the mothers responded positively. They spoke with passion that showed in their posture and tone of voice; their eyes sparkled, their voice softened, their body relaxed, and a big loving smile would show on their face. In spite of the pain experienced or the challenges faced or length of the breastfeeding experience, this same reaction was expressed by all mothers.

In general, all mothers described positive and intimate feelings about their relationship with their children being close; “there is a dialogue, she is communicating with me.” All mothers spoke about the bond and connection formed with the baby; “It is an amazing feeling; it builds a special connection with her. I feel huge passion and a bond (tarabot).” They also reported their happiness about being the unique source of nutrition and

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comfort to the babies, “It is beautiful to be able to breastfeed and I feel that I am the source of his nutrition and that he is growing. It makes me happy.”

All mothers who had previous babies and went through the weaning process expressed feelings of sadness about the separation process that occurred. One mother weaned her fourth child after 25 months; “I felt sad when I started weaning him. I felt there is separation. I started thinking he would let go of me and I would be dispensable to him.”

Theme 6: Seeing artificial milk as unhealthy. One mother used the metaphor of junk food and regarded giving artificial milk to feeding the baby junk food, which would be the first harmful nutrition in his life. Twelve mothers (36%) stated in the interviews that family members warned against the dangers of artificial milk. Some of the health risks that were mentioned by mothers in the interviews, even mothers who complemented, included: gas, constipation, risk of contamination, difficult to digest, triggered asthma, and that it could lead to a weakened immunity. There were also issues related to its inconvenience especially during outings: need for sterilization, carrying water/bottles/powder, heating/cooling. As one mother stated; “Artificial milk might get ruined and harm them. In addition to cleaning and sterilizing the bottles. It is hard to digest; breast milk is easier on their stomach. I don’t want to feel guilty if they become negatively affected, have weak immunity and become ill.” One mother mentioned that her husband was happy that he was relieved from the economic burden of artificial milk and worries from its scarcity in the market as experienced by his friends.

Twelve percent of mothers ($n = 4$) had a negative experience with their first baby’s health. So, they were motivated to start and continue breastfeeding their younger children. One mother shared; “I learnt the hard way when my first child got asthma after weaning and taking artificial milk at one month. We suffered with the attacks, inhalers and frequent emergency night visits to the hospital.”

Group 3: Adapting positively to motherhood. In the process of attending to their needs, mothers reported becoming more resilient and capable of coping with their challenges, adapting and gaining confidence about their role as mothers.

Theme 1: Self-care. Self-care emerged as a major factor that helped thirty mothers (91%) increase their milk flow and feel more satisfied with their breastfeeding experience. By attending to their physical needs; eating well and giving attention to their body to recover from pregnancy and delivery, their psychological wellbeing improved, “I gained a lot of weight in pregnancy, but I lost it with breastfeeding over a year. All I had to do was breastfeed and eat healthy; I didn’t deprive myself from any food.” All mothers knew that drinking fluids and eating protein were important in keeping their milk supply, 91% ($n = 30$) focused on eating healthy; “When we went to the doctor and found that she grew I felt so happy that I am eating right and that my milk is nutritious. I took responsibility of how I ate.”

Self-care also helped the same group of mothers to process the new overwhelming feelings associated with their new role as mothers. One mother saw that self-care helped her take care of her child and enjoy her time with him; “Self-care, vitamins, and rest are important for the daily functioning. When I feel well, I am capable of making him happy and enjoying our time together.”

Theme 2: Positive outlook on life. Ninety one percent of the positive deviant mothers ($n = 30$) seemed to share a positive and optimistic view of life, “You see what you want to see, if you see that your life will stop then it will. Take time to go out with your husband. Find time to yourself and look at the positive in life.” They had positive self-talk such as reaffirming themselves that it won’t last forever. This helped them endure the pain, exhaustion, and all the other challenges, “I would tell new moms that all the hassle; lack of sleep and clinging will last for six months, maximum one year. Then, they will start depending on food and become independent.”

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Theme 3: Lifestyle changes for adapting. Mothers adapted their lifestyle by looking for solutions to practical challenges. Solutions included: using a breast pump or a nursing cover, locating discrete places to breastfeed the baby alone, shopping for new practical clothes, and speaking with their partners.

The breast pump was mentioned by 33% of the 27 working mothers ($n = 9$) as a tool that helped them leave breast milk for their baby until they returned from work. However, the level of mother's satisfaction with it varied. Eleven percent of the mothers ($n = 3$) reported being very happy with being able to pump milk and leave it with the grandmother or sister to be fed to the baby without having to resort to formula. But 11% ($n = 3$) reported having a very weak flow of milk and didn't use it for long. Another 11% ($n = 3$) had difficulty with its sterilization, and the amount of time it took them to pump enough milk to leave for the baby.

All mothers who had more than one child adjusted their wardrobe with the second child and subsequent ones by shopping for practical unrevealing clothes that are easy to lift and handle when get ready to breastfeed in public. The nursing cover was convenient for 60% of the mothers ($n = 10$) one said, "with the second baby, I got the nursing cover. I took the decision to not let [breastfeeding] ruin my life or stop me from going out." Talking with the husband was also important as mentioned by three mothers (9%). They had to handle the husband's resistance of breastfeeding in public, as one mother explained, "I spoke with him about how difficult it was adjusting to the unpredictable needs of a child, he eventually accepted the situation."

Strategies for both contextual and personal barriers. Two themes related to strategies directed at both contextual and personal barriers: mothers' self-efficacy and confidence; and persistence and patience.

Theme 1: Self efficacy and confidence. Mothers' self-efficacy and confidence were important success factors for thirty mothers (91%). One mother overcame her postpartum

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depression and breastfed her three children with the help of her doctor who counseled her throughout pregnancy and after delivery. She involved people who could support her like her husband and mother. As she gained confidence in her ability to handle her babies, she started thinking of solutions to problems such as practical clothing to wear in outings:

I was crying when I knew about the last child. ‘But it is not impossible’, I said to myself, ‘I CAN DO IT’; study with my elder daughters while breastfeeding, so even my feelings were different. [Natural birth] gave me strength, resilience, and power. After the pain of natural delivery; a woman who can tolerate anything in life even in my work finishing my masters and PhD, also I can breastfeed.

Theme 2: Persistence and patience. All mothers reported that breastfeeding was a very difficult experience, but their persistence and patience were their key success factor; “I would advise new moms not to give up (teyas), to keep trying and be patient.” A young first-time mother who doubted her physical ability to produce breast milk, managed to persist and continue for four months despite her pain, annoyance from social pressure, shame from feeding in front of others (even family members), and depression.

The following table summarizes the main challenges, their possible reason, and the positive deviant strategies that mothers used.

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Table 1: Challenges faced by Positive Deviant Mothers, their Perceived Cause, and their Strategies

Challenge	Perceived Cause	Strategy used
Pain (cracks/bleeding)	(1) Lack of technical breastfeeding knowledge and skills for medical practitioners (2) Lack of breastfeeding mother's experience	(1) Stimulate with ointments & olive oil from pregnancy (2) Watch videos to learn how to hold baby and latch on (3) Follow up with online lactation consultants' posts and videos (4) Ask other mothers who are breastfeeding or have recently breastfed (5) Persistence, patience, self-efficacy, confidence
Exhaustion	(1) Delivery (2) Night feeds (3) Depression	(1) Identify support network and ask for their help (mother, sister, etc.) (2) Co-sleeping, breastfeeding while lying in bed (3) Involve husband, seek counseling
Low supply of milk	(1) Poor eating habits of mother (2) Others' perception (3) Nature of milk at night	(1) Eat well from pregnancy: proteins, vegetables, fruits – and drink fluids (2) Ignore negative people and their comments, follow up on baby's weight (3) Frequent feeding
Crying baby	Many reasons (hunger, security, bored, cold/warm, bloated ...)	(1) Carry baby and clam him/her then breastfeed (2) Ask others and get help (3) Sleep when baby sleeps and wake up with him/her

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		<p>(4) Do something enjoyable to be able to tolerate</p> <p>(5) Research & educate oneself (reading/online resources and support groups)</p>
<p>Late introduction of baby to mother</p>	<p>(1) Medical condition of baby</p> <p>(2) Hospital Practice</p> <p>(3) C-section delivery</p>	<p>(1) Hand expression</p> <p>(2) Agree with doctor and medical staff before delivery not to give glucose, ask them to get baby immediately for skin-to-skin, put baby's crib in mother's room</p> <p>(3) Natural delivery</p>
<p>Early 'unintentional' weaning</p>	<p>(1) Milk supply dried</p> <p>(2) Returning to work</p>	<p>(1) Exclusive breastfeeding for first 6 months and frequent feeding at night</p> <p>(2) Negotiate extending maternity leave or flexible arrangements, use a pump to leave breast milk with a trusted care giver</p>
<p>Outings</p>	<p>(1) Embarrassed</p> <p>(2) Inconvenient</p>	<p>(1) Don't go out, pump milk and leave baby, or find a discrete place</p> <p>(2) Use nursing cover, buy convenient clothes</p>

Discussion

The study looked into specific strategies that enabled positive deviant mothers to start and continue breastfeeding despite challenges. Results from both the survey and the interviews support previous international and local research about the personal and contextual challenges that face mothers. Egyptian mothers faced the same personal challenges as their international counterparts: pain and technical breastfeeding challenges, lack of knowledge and support, changing roles and emotions. However, there were some differences in the contextual factors such as institutional practices at hospitals, public places, and workplaces, the absence of the medical practitioners' role in advising mothers on technical issues, and cultural beliefs and practices.

Positive deviant mothers shared that breastfeeding should not be a painful experience; physically or psychologically if and when learnt. Their openness to learning was a major enabling factor for overcoming the lack of knowledge and support in their surrounding systems and adopting a positive mindset for solving practical issues. Online resources and support groups were very helpful in supporting them in learning about practical and technical issues of breastfeeding. They explained how physical pain was prevented with their second child by taking care of their health and wellbeing from pregnancy until delivery. For their physical health, they researched what to eat and took vitamins, rested during recovery from delivery, and co-slept with her baby for night feeds. They also shared that they overcame their psychological challenges by insisting on their needs, asking for help from their immediate network at the hospital, home and work, and arranging for going out in public places and returning to work. They asked for immediate contact with baby, adjusted their clothes and lifestyle to be able to enjoy their life with their baby, asked for help from their mothers and husbands, sought out a supportive doctor, and negotiated work arrangements. They wanted to breastfeed and believed they could, so they adapted and succeeded.

Although prior research did not examine the role of self-care in breastfeeding continuation, it was an important success factor for the positive deviant mothers in this study. This might be because Egyptian mothers saw that it was their responsibility to maintain the quality of the milk that was gifted to their baby.

Setting an intention and determination to breastfeed

Knowledge of benefits. As predicted by the intraindividual theories of reasoned action (DiGirolamo et al., 2005), planned behavior (Giles et al., 2007; Duckett et al., 1998), and life context (Whipps et al., 2018), the positive deviant mothers who had the knowledge about benefits of breastfeeding and a positive perception of it easily formed an intention to breastfeed their infants. Their intention was formed not only by the desire to pass on the gift bestowed to the child by God, but also by knowledge of the specific benefits of breastfeeding, especially for building their child's immune system and brain development. This confirmed research by Mohammed, Ghazawy, & Hassan (2014) and Ismail (2008) which found that initiation of breastfeeding was impacted by knowledge about its benefits. Knowledge of benefits has also been found to help with the maintenance of breastfeeding as it makes mothers more determined to continue despite challenges (El Shafei & Labib, 2014; Brown, 2014; Rollins et al., 2016). In the present study, the positive deviant mothers were not only knowledgeable about the benefits of breastfeeding, but they also sought additional knowledge as a strategy to overcome technical challenges.

Unlike their international counterparts who were educated by medical practitioners, Egyptian positive deviants' knowledge about the breastfeeding practices and technicalities came from their own research efforts during or after their experience with their first child (Dayton et al., 2018; Tadesse et al., 2018). In the present study, about half of the mothers reported using specialized websites and online virtual communities and support groups. They provided them with the support they needed and information, which is similar to the findings

reported by Bridges (2016). However, more research is needed on the role of online references and virtual communities in educating mothers or on breastfeeding outcomes as reported by Wagg, Callanan, & Hassett (2019) and Robinson, Lauckner, Davis, Hall, Anderson (2019).

Previous studies have shown that breastfeeding is a mutually beneficial activity, physically and emotionally, for both the mother and her baby (Victoria et al., 2016; UNICEF, 2017; Horta & Victoria, 2013; American Academy of Pediatrics; Mississippi State Department of Health; La Leche League International; Aune et al., 2014; Wang, Li, & Shi, 2015; Peters et al, 2017; Isaacs et al., 2010; Papp et al., 2018; Groer, Davis, & Hemphill, 2006; Hahn-Holbrook et al., 2013). However, as was found by other research on Egyptian mothers (Mohammed, Ghazawy & Hassan, 2014; Ismail, 2008) while the positive deviant mothers in the present study knew about its benefits for their child, they were not aware of its benefits for themselves.

Early initiation of breastfeeding

Hospital practices and mothers' insistence on meeting their needs. Stories narrated by the positive deviant mothers indicated the lack of technical breastfeeding knowledge and limited ability of hospital staff to provide support at the point of initiation. This was in line with what was reported by Victoria et al. (2016); UNICEF's report (2017), Whipps; Yoshikawa, & Godfrey (2018); Rollins et al. (2016); WHO (2011); Renfrew et al. (2012); that the common medical practice was to take the baby for a bath and the heater, give him/her glucose (pre-lacteal), and then initiate contact between mother and baby after a couple of hours or the following day if the mother had a caesarian delivery.

According to the survey results in the present study, 76% of mothers saw their baby within the first two hours. According to the interviews, mothers demanded access to this after learning that it benefits in the natural flow of milk. Whipps, Yoshikawa, & Godfrey (2018)

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and Lauwers & Swisher (2005) found that early first contact with the baby was important for a smooth beginning to breastfeeding and its successful continuation. This was also found in the present study by the twelve mothers who did the skin-to-skin early contact and reported a smoother breastfeeding experience in terms of early milk flow, quick healing of pain, and the baby's ability to properly suckle. These findings support the point that early contact between mother and baby is important and needs to be enforced in all hospitals. It is important that hospitals inform first-time mothers about the practice and its benefits and give them the right to access.

Decision to continue breastfeeding despite challenges

Positive deviant mothers used whatever support they could get from their context and various ecological systems to solve personal and contextual challenges and continue. This included asking for help and technical support, following up on the baby's health, and using their self-efficacy to adapt and find solutions.

Asking for help and support. Grandmothers' (mothers of mothers) and sisters' positive help and encouragement contributed towards mothers' recovery and healing from delivery, and not giving up on breastfeeding. Mothers described it as a vulnerable period where they needed physical assistance and guidance in caring for themselves and their baby. A systemic review conducted by Negin, Coffman, Vizintin, & Greenow (2016) revealed that the presence of grandmothers who were pro-breastfeeding improved breastfeeding outcomes as they influenced their daughter's decision to breastfeed and recommended that they would be involved in educational programs. However, in the present study, the grandmother's help during the initial recovery phase was associated with the husband's lack of involvement. It could be that the grandmothers' support made husbands feel that their own support was unimportant. Grandmothers' assistance also likely contributed to fathers' not feeling the need to learn how to help; as was found by earlier research (Avery & Magnus, 2011; Hansen,

Tesch & Ayton, 2018), mothers in the current study reported that fathers didn't know how to support them in breastfeeding. Alternatively, this lack of support could be attributed to the father's exhaustion due to the difficult work situations and long working hours, or it could be attributed to cultural beliefs around gender roles. This was not clear given that mothers told their side of the story and fathers were not included in the studied sample.

Surprisingly, mothers appeared indifferent about their partner's lack of support, which differed from research by Bar-Yam & Darby (1997) which emphasized the importance of father's support as a contributing factor in the success of breastfeeding. This may be due to cultural differences in gender roles, but in the present study, when mothers asked for the husbands' help and involved them in specific duties such as handling elder children or carrying things, they cooperated. This is similar to the finding of a positive deviance inquiry conducted by Munoz & Molinar (2015) in the USA. They found that mothers who breastfed beyond first year had a plan before and after delivery that included communicating their need for support from others. These findings suggest that fathers' role and level of involvement may depend on the quality of spousal communication; mothers need to tell their husbands what they need in clear terms. It may also indicate the need for new legislation and cultural change efforts for enabling husbands' involvement such as paternity leave and targeted educational programs.

Follow up on baby's health. Mothers in this study were happy to follow up with the doctors who supported and encouraged them based on their babies' positive health outcomes such as their growth, weight and frequency of illnesses. This support and encouragement from the doctor assured mothers about their milk quality and boosted their confidence to continue. This may be justified by the reasoned action theory (DiGirolamo et al., 2005) where positive feedback during the early months contributed towards continuation. This finding could be used in educating the mothers about the importance of following up with a doctor

during the early months to check the baby's growth and weight as an indication of milk sufficiency.

Need for technical support. As was found in previous research (Refrew et al., 2012; Sadek et al., 2015), the doctor's role was limited when it came to breastfeeding technicalities. The positive deviant mothers reported that their doctor could not diagnose or treat breastfeeding problems, forcing them to research online or ask other breastfeeding mothers with experience about technical difficulties faced while breastfeeding. The absence of such knowledge may have led to the excruciating pain suffered by mothers especially those who couldn't practice early initiation. Therefore, medical practitioners need to study lactation consulting or be able to refer mothers to lactation consultants who could help in counselling and supporting mothers throughout their technical breastfeeding difficulties. The International Board of Certified Lactation Consultants (IBCLC) is the only internationally certified health care professional in the clinical management of breastfeeding and human lactation (International Lactation Consultants Association, 2011). In Egypt, certified lactation consultants are not recognized by the Ministry of Health or the Medical Syndicate and there is no obligation for pediatricians or gynecologists to study lactation management.

Positive deviant mothers reported that support from mothers who are breastfeeding or who have recently breastfed helped them learn technical skills required to reduce pain such as information about creams to use, shops for nursing clothes, and positions for effective suckling, and useful online resources. They were a good practical reference for them regarding coping with lifestyle changes such as how to and where to get pumps and clothes, handle outings and negative comments or false information, and tips for negotiating work arrangements with employers. This is in line with findings linking positive breastfeeding outcomes to support groups (Phillips et al., 2018; Shakya et al, 2017), which highlights the role that support groups can play in improving breastfeeding outcomes.

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Positive deviant mothers, especially first-time mothers, expressed their intolerance and vulnerability to any comments that may shame or judge them into feeling incompetent or guilty. They required a therapeutic approach after their painful delivery experience, which has been the same internationally (WHO, 2018; UNICEF, 2017; Brown, 2014). They avoided negative people, or confronted them, or spoke with positive people more who encouraged them and made them feel better about what they do. Therefore, it is important that the social and medical support networks around the mother learn how to counsel and encourage the mother, or at least not to criticize and ridicule her efforts.

Self-efficacy and confidence. Positive deviant mothers were relaxed, hopeful, and confident about their ability to do it and persisted with patience until they did. This may indicate the positive calming effect of hormones excreted during breastfeeding as mentioned by Papp et al. (2018). It could also indicate that mothers who believe that they can carry out a certain behavior (e.g. breastfeeding) are more likely to start and continue breastfeeding as explained by the self-efficacy theory (Nichols et al., 2009). Positive deviant mothers' stories indicated a high level of self-efficacy after doing their research online and referring to their informal support network; they believed they could continue based on the information they gathered and they did their best to increase their milk supply, and they succeeded. Nichols et al. (2009) and McCarter & Kearney (2006) recommended using self-efficacy as an intervention for improving breastfeeding outcomes based on the self-efficacy theory premises. Therefore, an intervention promoting self-efficacy might be an effective intervention in improving breastfeeding outcomes among Egyptian middle-class women. It also supports the proposition that the more knowledgeable a mother is, the more determined and motivated she is to continue despite challenges (El Shafei & Labib, 2014; Brown, 2014; Rollins et al., 2016).

Adapting and finding solutions. Positive deviant mothers spoke about how breastfeeding helped them feel the meaning of being responsible for the new baby and becoming a mother. This is similar to Whipps et al. (2018) and Oosterhoff et al. (2014) findings that motherhood was a transitional life event that involved new roles and decisions that would impact women's life and work. The positive deviant mothers shared that it required flexibility and ability to adapt to their needs to eat well, function with little sleep and physical exhaustion, learn from others, and trust themselves and their ability to continue.

As was found in other studies in the USA and UK (Guttman & Zimmerman, 2000; Morris, 2016), positive deviants reported that their partners were embarrassed about breastfeeding in public. The mothers dealt with the challenges of breastfeeding in public by either staying home the first few months, leaving the baby with pumped or expressed milk, using a nursing cover, or using the bathroom. Based on such findings, it would be appropriate to have private clean rooms for mothers to use for breastfeeding in public places.

Two thirds of the positive deviant mothers managed to negotiate extending their leave to 12 months or more. As found by other researchers (Pitonyak, Jessop, Pontiggia, & Crivelli-Kovach, 2016; Manal et al., 2010), there is a connection between maternity leave length or flexible work arrangements, and mothers' ability to continue breastfeeding. From the analysis of the interviews, mothers who had to return to work early had poor sleep due to night feeds. However, they were happy about returning to work when it was their choice or when they the duration of their maternity leave allowed them to breastfeed as long as they wanted.

Upon returning to work, their specific strategies included taking regular breaks for nursing or pumping and leaving the milk for their baby. Over a third of the working mothers (nine out of 27) used pumping as a strategy to leave milk for their baby and reduce their breast from filling up during work. However, they had to pump inside the bathroom due to the unavailability of designated facilities. The evidence from this study around work showed

that despite the positive impact of returning to work on the mother's mood, it forced them to complement or wean early if they had to return when they were not ready due to the unsupportive work arrangements.

Similar findings were reported by UNICEF (2015), where it was found that working mothers were unable to enjoy the full duration of the maternity leave stipulated by law and weren't commonly provided a place to breastfeed or express milk. This situation is common internationally, but action has been taken by some countries to pass more supportive laws in favor of mothers. McKinley & Hyde (2004) found that mothers managed to breastfeed for longer when their employers supported their choice to continue breastfeeding by offering them facilities to pump and store breast milk. The United States Breastfeeding Committee in the US Congress passed the Nursing Mothers Law (Affordable Care Act) that urged employers for supporting mothers through necessary arrangements at workplaces (Kozhimannil et al., 2016; Alb et al., 2017). In Thailand, breastfeeding rates improved after enactment of the Mother-Friendly Workplace Initiatives by the World Alliance for Breastfeeding Action (WABA) and the Thai government (Yimyam & Hanpa, 2014).

Recommendations

Lessons learnt from positive deviant mothers indicate that there are existing cost-efficient solutions that could help improve breastfeeding outcomes. Based on the strategies employed by the positive deviant mothers in this study, the following interventions are recommended to increase breastfeeding among middle-class mothers in Egypt

Microsystem interventions recommended are educational programs for empowering mothers with information and their immediate support network: mother or sister, and husband. The involvement of family members will eventually help influence cultural misconceptions on a macrolevel. Other microsystem interventions would be educational

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programs for medical practitioners working with women to support her with the right technical information with compassion and respect.

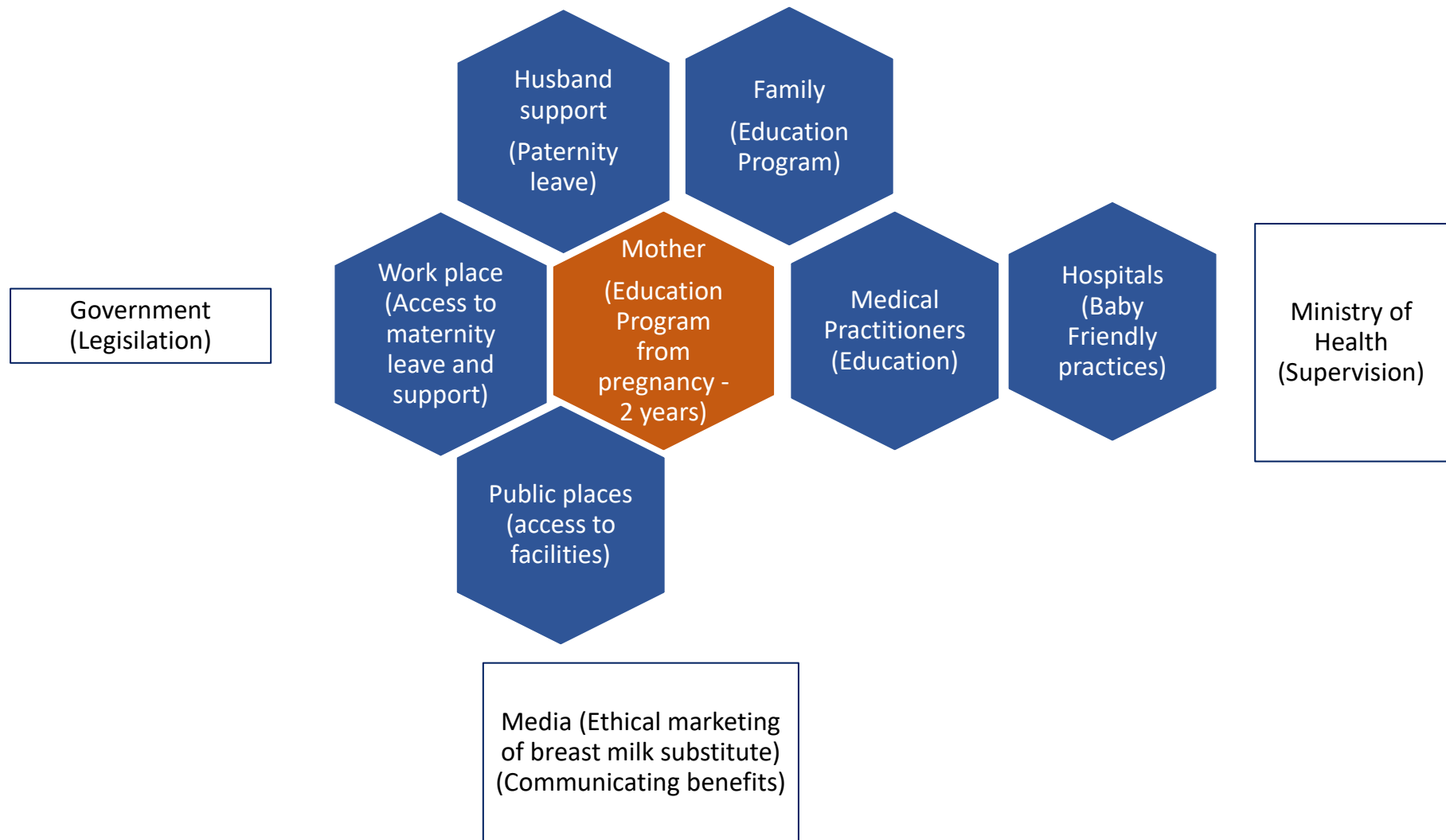
Mesosystems, such as the connections between medical staff at the hospital and the mother's family members can be improved through training medical practitioners and completing the steps required for having baby friendly accredited hospitals.

Exosystems, such as workplace policies around maternity leave and onsite feeding can be targeted by having a dialogue between the private sector and government in order to agree on mechanisms that guarantee women's access to the full duration of the maternity leave or availability of flexible work arrangements and supportive facilities at work for milk pumping. Another exosystem such as hospital practices can be improved through supervision and having a collaborative dialogue between the Ministry of Health and the hospitals to agree on mechanisms that would enable the introduction and adherence to baby friendly practices.

Macrosystems adjustments can be made to improve economic support for parents at work, to legally allow for a paternal leave for the first 40 days where a father can be involved, positive media messages to indirectly influence mother's choice and motivation to breastfeed, and enforcing legislation related to the regulation of marketing messages of breast milk substitutes.

A summary of the proposed interventions is depicted below, see figure 12.

Figure 12: Summary of Proposed Interventions



Educational programs. The positive deviant mothers were aware of the benefits of breastfeeding, either through their own research, their own experience, or through advice given by family, friends and medical professionals. As discussed, research has shown improved breastfeeding outcomes with educational programs involving the pregnant mother and her close community members such as the husband and/or the mother. Dayton et al. (2018) and Tadesse et al. (2018) carried out a systematic review and recommended that fathers participate in educational programs to improve breastfeeding outcomes. Also including grandmothers has been associated with improved maternal and child wellbeing (Aubel, 2014).

Some of the positive deviant mothers were supported in breastfeeding by their mothers while others found that their mothers made breastfeeding more difficult. In both cases however, grandmothers were an important source of influence. The Grandmother Project founded by Aubel included grandmothers in a participatory education process given their influence on their daughter's decision, thus turning them into a community resource. Egypt has a collective culture holding a high value for respecting the elderly. Thus, a participatory educational program that includes the elderly family members can be a suitable mode of intervention for handling resistance to breastfeeding and common cultural misconceptions.

Based on the findings discussed above, an intervention focused on strengthening knowledge can help build the self-efficacy and confidence of mothers. As per the results, the knowledge gaps that need to be addressed are:

1. Healthy eating from pregnancy onwards
2. Identifying support network and getting them involved
3. Benefits of breastfeeding, exclusivity and continuation
4. Setting expectations about delivery and first contact

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5. Importance of skin-to-skin and effective latch on (skills on how to hold the baby)
6. Importance of breastfeeding on demand, night feeds, and responsiveness
7. Understanding growth charts
8. Simple possible technical difficulties and how to handle
9. What to ask for at the hospital, home (spousal communication), and work? And how?
10. Handling practical issues and difficult emotions
11. Planning to return to work
12. Negotiation and assertiveness skills

Positive deviants resorted to online resources especially videos on social media and the internet, to increase awareness about breastfeeding benefits and the correct practices that promote breast milk flow and production. So, the internet could be a convenient mode of delivery for the above-mentioned intervention. Information was obtained by the positive deviants from international websites, so maybe having more material in Arabic can mean accessibility to larger base of middle-income mothers. The mother needs to be able to access resources more easily to become effectively prepared and trained on how to breastfeed successfully.

Support groups. Support groups are another intervention that worked effectively with the positive deviant mothers, providing them with psychological support, improving their confidence, and building a sense of community for breastfeeding mothers away from the family tensions. The mothers also expressed their interest and willingness in supporting other mothers going through the same journey. There is evidence that such groups can be helpful to nursing mothers (Phillips et al., 2018; Shakya et al, 2017), providing a source of social support and learning through modeling. The support groups could help in building community support resources among mothers especially working mothers by sharing

knowledge about or services for reliable childcare services, study groups for older children, readymade affordable meals to pick up or get delivered.

Building capacities of medical practitioners in breastfeeding. Another intervention that could be effective is the training and education of medical practitioners on technical breastfeeding issues and counseling mothers. Positive deviant mothers expressed their vulnerability when people spoke to them with blame or judgement even their doctors. They changed doctors until they found one who reassured them and praised their effort. Medical students who studied lactation management improved their knowledge about breastfeeding and their ability to support mothers start and continue smoothly (Fawzi, Kadry, Abd Rabo, & Abdul-Fadl, 2013; Sadek et al., 2015; Aboul Fetouh, El-Bakry, Abul-Fadl, 2015; Abdel Aziz, Kassab, Abdelnasser, Hosny, 2018). Therefore, it is recommended that breastfeeding counseling be integrated into medical curriculum. Some of the positive deviant mothers mentioned the possibility of employing a lactation consultant; certified lactation consultants need to be recognized by the Ministry of Health or the Medical Syndicate. Many of the positive deviant mothers advocated for early contact, rooming-in and other hospital practices that made breastfeeding easier for them. These practices are supported in the baby-friendly certification, so it is also recommended to build hospital capacities for achieving this accreditation.

Workplace policies and practices. Despite the presence of laws and legislation that give rights to working women in Egypt, they are not effectively enforced especially by the private sector. Positive deviant mothers depended on their ability to negotiate and influence their employers for extended maternity leave within that stipulated by law or flexible work. A dialogue needs to take place between the government and the private sector to encourage businesses to support of mothers especially during the first two years of their child's life.

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Businesses can find alternatives to coercing mothers to return to work before first year of age such as flexible work arrangements, switching to part-time, or hiring a temporary replacement. Other possible options for both parents especially first-time parents during the first year could be remote working (from home), flexible working hours, paternal leave for at least the first 40 days until the mother partially recovers from delivery, and shift hours.

It would be interesting to experiment with the idea of having organizations build a nursery on their premises so that the mother can easily breastfeed her baby when needed as one mother did. This could be a benefit that would attract high caliber working mothers and motivate them to work while being close to their baby. However, employers in that case need to be aware of the need for regular nursing breaks for mothers of young infants.

Public places policies. Positive deviant mothers faced challenges with public breastfeeding. The government can encourage workplaces, private restaurants or shopping centers through a tax reduction incentive or some other form of incentive to designate a clean, well ventilated, and equipped area or room for breastfeeding mothers. This could give them privacy to breastfeed their baby or pump breast milk to feed to the baby.

The early prevention program called “first 1,000 days” (UNICEF, 2015) could be a starting point for implementing such recommendations as it would address pre-natal care, breastfeeding promotion, and nutrition counselling for pregnant and breastfeeding women.

Limitations and Suggestions for Future Research

The results are relevant only to Egyptian upper middle-income mothers who live in Cairo. In other settings, there may be other challenges and structural or personal barriers. For instance, uneducated women in rural areas may not have access to the internet or may not understand the material available about breastfeeding and may require simple videos or illustrations. In this case, it could be better to improve structural factors for those mothers. A positive deviance inquiry with this population would be a good form of gathering information

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and making informed recommendations. Also, the small size of the sample could be a limiting factor, making it difficult to generalize the findings.

Although the positive deviance inquiry in this study focused on the mother as the core voice of the community, it didn't include the voice of other members of the system. It would be interesting to interview the grandmothers and/or the husbands in addition to the doctor and medical staff at the hospital to get a more holistic perspective of the mother's system. This would help verify the information provided by mothers about the influence of the context. It would have guided the recommendations better regarding what needs to be modified in that system. For instance, the recommendation to train medical practitioners on counseling mothers could be guided by observing the interaction between mothers and the medical staff at the hospital during delivery or during consulting them on breastfeeding difficulties. The results of this study pave the way for further research using the positive deviance methodology related to pregnant and breastfeeding mothers given the huge research gap in this area in Egypt.

Some mothers were first-time mothers and are still breastfeeding. It would be interesting to follow up with them to know how long they continue and how they handle any challenges that might emerge. This would be an area for further research and inquiry.

Many of the mothers in this study used the internet as a resource. It is important therefore to do additional research to determine the quality of information on internet resources, the accessibility of the internet as a resource for breastfeeding mothers, and the potential for online breastfeeding support groups.

Conclusion

This positive deviance inquiry revealed important insights into strategies used by Egyptian middle-class urban women who succeeded in breastfeeding despite common challenges. They were persistent, looked for information and solutions to their problems,

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communicated and negotiated their way through others' resistance, and had a strong self-belief that they could do it and they did. Their mothers (grandmothers) and sisters played a major role in helping them recover from delivery and learn about handling the baby.

Based on the findings, interventions targeting the education and empowerment of women from pregnancy and during breastfeeding could be an efficient and effective intervention for empowering mothers and their families with the correct technical knowledge and encouraging social support. Adjustments are needed at hospitals, medical practitioners' knowledge and skills, and at work. The positive deviants interviewed in this study make it clear that both contextual and personal factors are important to address for promoting breastfeeding and ensuring families' health and wellbeing.

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Appendix A. IRB Approval

CASE #2018-2019-135



To: Ayah Sarhan
Cc: Safaa Sedky
From: Atta Gebril, Chair of the IRB
Date: May 22, 2019
Re: Approval of study

This is to inform you that I reviewed your revised research proposal entitled "**A Positive Deviance Inquiry of Breastfeeding in Egypt**" and determined that it required consultation with the IRB under the "expedited" category. As you are aware, the members of the IRB suggested certain revisions to the original proposal, but your new version addresses these concerns successfully. The revised proposal used appropriate procedures to minimize risks to human subjects and that adequate provision was made for confidentiality and data anonymity of participants in any published record. I believe you will also make adequate provision for obtaining informed consent of the participants.

This approval letter was issued under the assumption that you have not started data collection for your research project. Any data collected before receiving this letter could not be used since this is a violation of the IRB policy.

Please note that IRB approval does not automatically ensure approval by CAPMAS, an Egyptian government agency responsible for approving some types of off-campus research. CAPMAS issues are handled at AUC by the office of the University Counsellor, Dr. Ashraf Hatem. The IRB is not in a position to offer any opinion on CAPMAS issues, and takes no responsibility for obtaining CAPMAS approval.

This approval is valid for only one year. In case you have not finished data collection within a year, you need to apply for an extension.

Thank you and good luck.

A handwritten signature in black ink that reads "Atta Gebril".

Dr. Atta Gebril
IRB chair, The American University in Cairo
2046 HUSS Building
T: 02-26151919
Email: agebril@aucegypt.edu



Institutional Review Board
The American University in Cairo
AUC Avenue, P.O. Box 74
New Cairo 11835, Egypt.
tel 20.2.2615.1000
fax 20.2.27957565
Email: aucirb@aucegypt.edu

Appendix B. Consent Form – English Version



Documentation of Informed Consent for Participation in Research Study

Project Title: Understanding infant feeding practices in Egyptian Urban communities

Principal Investigator: Ayah Sarhan, Community Psychology, American University in Cairo, ayahsar@aucegypt.edu

You are being asked to participate in a research study. The purpose of the research is to explore factors that help mothers make decisions about their infant's feeding practices, and the findings may be published or presented. The expected duration of your participation is 90 minutes. The procedures involved in this research will be that you are asked to tell the story of your experiences with feeding your baby.

There are no known risks associated with this research. Participation in this study is voluntary. Refusal to participate or discontinue will involve no penalty or loss of benefits to which you are otherwise entitled.

The information you provide will be audiotaped for purposes of this research and will be kept *confidential*. Even where findings of the research should be published or presented, it will be in an anonymized fashion. All data will be kept in a locked filing cabinet in the office of the Principal investigator, and any electronic data will be kept in an encrypted and password protected file on the Principal Investigators laptop, accessible to her only during data collection and for a period of three years after.

Consent Form – Arabic Version

الجامعة الأمريكية بالقاهرة 

استمارة موافقة مسبقة للمشاركة في دراسة بحثية

عنوان البحث : دراسة بحثية عن انماط التغذية للطفل الرضيع في المجتمعات المصرية.

الباحث الرئيسي: اية سرحان
البريد الالكتروني: ayahsar@aucegypt.edu
الهاتف: 0111111768

انت مدعو للمشاركة في دراسة بحثية عن انماط التغذية للطفل الرضيع في المجتمعات المصرية.

هدف الدراسة هو معرفة العوامل التي تساعد الامهات في اتخاذ قرارات خاصة بالممارسات الغذائية لرضيعها.

نتائج البحث ستنشر في دوريه متخصصه أو مؤتمر علمي أو ربما كليهما.

المدة المتوقعة للمشاركة في هذا البحث: 90 دقيقة.

اجراءات الدراسة تشمل على سرد قصتك و خبرتك في تغذية رضيعك.

المخاطر المتوقعة من المشاركة في هذه الدراسة: لا يوجد مخاطر مرتبطة بهذا البحث.

السرية واحترام الخصوصية: المعلومات التي ستدلى بها في هذا البحث سوف تكون سرية وسوف تظل مجهولة الهوية حتى عند نشر البحث، جميع المعلومات سوف تظل مع الباحث الرئيسي فقط محفوظة في ادراج مغلقة في مكتب الباحث و أي معلومات الكترونية سيتم حفظها بكلمة سر على جهاز الباحث الرئيسي لمدة ثلاث سنوات بعد الانتهاء من البحث.

ان المشاركة في هذه الدراسة ماهي الا عمل تطوعي، حيث أن الامتناع عن المشاركة لايتضمن أي عقوبات أو فقدان أي مزايا تحقق لك. ويمكنك أيضا التوقف عن المشاركة في أي وقت من دون عقوبة أو فقدان لهذه المزايا.

الامضاء:

اسم المشارك :

التاريخ :/...../.....

Appendix C. Survey Questions – English Version

Demographic questions

Age: under 20 20-30 30-40 over 40

Income: EGP '000 6-7 7-8 8-9 9-10 10+

Level of education: Primary Preparatory Secondary College University Postgrad

Area of residence:

Number of children: Child (age)

Delivered in: Hospital name

Work: Professional Worker House wife

Maternity leave: (Months)

When did you see your baby?

- Within the first two hours
- On the first day
- On day two

What was your plan for feeding your baby before delivery?

- Breast feeding
- Formula feeding
- A mix of both
- Had no plan

Which feeding practice did you follow during the first:

Month: 2 months: 3 months: 4 months:

5 months: 6 months: After 6 months:

What resources do you refer to when you have questions?

- Family members (please specify relationship):

POSITIVE DEVIANCE INQUIRY IN BREASTFEEDING

- Friends
- Doctor
- Online resources (please specify):
- Other (please specify):

How frequently does your child go to the doctor (due to sickness)?

- Rarely (once every season)
- Often (once every month or every other month)
- Frequently (more than once per month)

How did your infant feeding choice impact your life?

- Positively
- Neutral
- Negatively

Survey Questions – Arabic Version

الاستبيان

- 1- السن: أقل من 20 20-30 30-40 فوق 40
- 2- دخل الأسرة: 7000-6000 8000-7001 9000-8001 10000-9001 10000+
- 3- مستوى التعليم: الابتدائي الإعدادي الثانوي معهد جامعة دراسات عليا
- 4- منطقة السكن:
- 5- عدد الأطفال و أعمارهم:
- 6- مكان الولادة (اسم المستشفى):
- 7- طبيعة العمل: مهني فني ربة منزل
- 8- مدة اجازة الوضع (الأشهر):
- 9- متى رايتي مولودك؟
 خلال أول ساعتين في اليوم الأول في اليوم الثاني
- 10- كانت ايه خطتك بالنسبة لطريقة التغذية قبل الولادة؟
 رضاعة طبيعية تغذية صناعية مزيج من الاثنين لم يكن لديكي خطة لطريقة معينة
- 11- و ايه الطريقة اللي نفذتها عند:
 الشهر: الشهرين: الثلاث أشهر:
 الأربعة أشهر: الخمسة أشهر: الستة أشهر:
 بعد الستة أشهر:
- 12- مين كان مرجعك لما كان بيبقى عندك أسئلة؟
 العائلة (الصلة): الأصدقاء الطبيب مواقع التواصل الاجتماعي اخرى (برجاء التحديد)
- 13- بتقوموا بزيارة طبيب الأطفال كل قد ايه (بسبب مرض طفلك)؟
 نادرا (مع تغير الفصول) احيانا (كل شهر/شهر و شهر) كثيرا (أكثر من مرة في الشهر)
- 14- انتي شايفة طريقة التغذية مآثرة على حياتك بطريقة:
 ايجابية سلبية لا يوجد تأثير

Appendix D. Interview Questions – English Version

Question 1: Tell me more about your infant feeding experience.

Follow up question: What motivated you to start? and what motivated you to continue breastfeeding?

The following questions could be asked in case she doesn't bring it up:

Question 1: When was the first time you thought about infant feeding, and what did you think about it?

Question 2: How did you decide about your infant feeding choice?

Follow up questions: What was your plan regarding feeding your infant? Who was your reference? Who helped you reach a decision?

Question 3: What challenges did you face? How did you deal with them? *Or How did you overcome any challenges and make your breastfeeding experience successful?*

Follow up questions: How did that (*behavior stated by the mother*) make you feel?

Prompt – if the answer was support: Who? What did s/he say?

Prompt – if the experience was differences in places (public versus private)/around certain people (family versus friends)/events (returning to work): How different was it?

Prompt – if reading and knowledge helped her: What information helped you? Which resonated more with you?

Question 4: What other thoughts would you like to share?

Question 5: If you to talk to a new mother, what would you share with her to encourage her to breastfeed her baby?

Interview Questions – Arabic Version

- 1- احكي لي عن تجربتك مع الرضاعة
≤ ايه اللي شجعك انك تبدأي؟ و ايه اللي شجعك انك تكلمي؟
- 2- امتي كانت أول مرة قررتي ترضعي؟ و كان رأيك ايه ساعتها؟
- 3- ازاي اخذتي القرار ده؟ (و كانت ايه خطتك؟ مين كان مرجعك؟ و مين ساعدك توصلي لقرار؟)
- 4- ايه التحديات اللي واجهتك؟ و ازاي اتعاملتي معاها بحيث انك تنجحي و تكلمي؟ (و ده حسسك بايه)
≤ اذا كانت التحديات أماكن (احكي لي ازاي أو ايه اللي كان صعب في انك ترضعي وقت الخروج / و انتي لوحدك؟)
≤ اذا كانت التحديات اشخاص معينين (احكي لي ازاي أو ايه اللي كان صعب في انك ترضعي قدامهم)
≤ اذا كانت التحديات تدور حول احداث معينة (احكي لي ازاي أو ايه اللي كان صعب في انك ترضعي لما نزلتي الشغل)
- ≤ اذا كان سبب النجاح مساعدة شخص: مين اللي ساعدك؟ ازاي؟ كان الشخص ده بيعمل أو بيقول ايه؟
- ≤ اذا كان سبب النجاح المعرفة و القراءة: ايه المعلومات اللي ساعدتك؟ و ايه اكثر معلومة رسخت عندك؟
- 5- في أي أفكار تانية تحبي تقوليها؟
- 6- اذا اتكلمتي مع أم جديدة، ايه اللي ممكن تشاركيه معاها علشان تشجعها ترضع؟