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Mothers' Knowledge and Practice Regarding Breast and Complementary Feeding of Infants in Gaza Strip, Palestine

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Mothers' Knowledge and Practice Regarding Breast and Complementary Feeding of Infants in Gaza Strip, Palestine

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Dedication

To my great father, and my beloved mother who I owe them my success

To my son and daughters, I see the future in their eyes

To my brothers and sisters who encouraged me all the way

To my friends and colleagues

Great thanks and appreciations to all those who contributed to the completion of this thesis… without your support, this work would not come to end.

Ibrahim Riyad Abd Elrahman Abu Saleh

Declaration

I certify that this thesis submitted for the degree of Master, is the result of my own research, except where otherwise acknowledged, and this study (or any part of the same) has not been submitted for a higher degree to any other university or institution.

Signed:

Ibrahim Riyad Abd Elrahman Abu Saleh

15/12/2021

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Abstract

Appropriate feeding of infants is very important to avoid malnutrition and morbidity. The purpose of the study was to assess mothers' knowledge and practice regarding breast and complementary feeding of infants in the Gaza Strip (GS), and to determine the factors associated with level of knowledge and practice of exclusive breastfeeding and complementary feeding (EBF & CF). The study utilized descriptive, cross-sectional design. The sample of the study was convenient and consecutive, consisted of 375 mothers of infants aged seven to twelve months. The mothers who met inclusion criteria were selected during their visits to the governmental Primary Health Care Centers (PHCCs) in the GS for vaccination of their infants including Jabalia Martyrs PHCC, Al Rimal Martyrs PHCC, Al Daraj PHCC, Al Zytoon PHCC, Deir Al-Balah Martyrs PHCC, Khanyounis Martyrs PHCC, and Rafah Martyrs PHCC. The study has been conducted during the period from February 2021 to November 2021. For data collection, the researcher developed self-administered questionnaire to measure the knowledge and practice of mothers regarding EBF and CF. A pilot study was conducted on 37 questionnaires, clarity and content validity of the questionnaire was examined by a group of experts, reliability was examined and alpha coefficient was 0.789. Ethical approval was obtained from Helsinki Committee and Consent form was attached to each questionnaire for respondents, as well as administrative approval for data collection was obtained from the Ministry of Health. The results showed that 85.6% of mothers were housewives, 37.3% have university education, mean income was 923.81 NIS, 81.6% delivered in a governmental hospital. Infants' characteristics indicated that 86.9% were full-term, mean birth weight was 3,257g. The results also showed that 78.4% of mothers received information about EBF during antenatal care (ANC) visits as well 79.5% received information about CF. 96.8% of mothers initiated BF within first hour after delivery, 68.5% of mothers breastfed their infants for more than six months, and 47.5% gave their infants artificial milk, and 40% of mothers started CF at six months. There was moderate level of knowledge (75.94%) and practice (66.08%) of EBF, and moderate level of knowledge (75.73%) and practice (73.82%) of CF. There was significant relationship between knowledge and practice of EBF (r= 0.464), and knowledge and practice of CF (r= 0.525).

Significant better knowledge and practice of EBF was observed among mothers from the North governorate, mothers with secondary and university education, mothers who had one to three pregnancies, mother who has ≥5 years spacing between pregnancies, and mothers who delivered by normal vaginal delivery. Significant poor knowledge and practice of EBF was observed among mothers of family size of nine members and more, mothers with seven deliveries and more, and mothers with seven live children and more. The results also indicated that mothers who delivered at governmental hospitals showed poor practice of CF, and mothers with five years and more spacing between pregnancies showed better level of knowledge and practice of CF. The study concluded that there was moderate level of knowledge and practice of EBF and CF. Several factors have significant influence on knowledge and practice of EBF and CF including place of residency, mothers' level of education, work, income, number of pregnancies and deliveries, and family size. The study recommended more efforts to emphasize maternal knowledge regarding EBF and CF of infants.

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List of Abbreviations

ANC	Antenatal Care
BF	Breastfeeding
BW	Birth Weight
CF	Complementary Feeding
CS	Cesarean section
EBF	Exclusive Breastfeeding
EIBF	Early Initiation of Breastfeeding
GS	Gaza Strip
LBW	Low Birth Weight
MoH	Ministry of Health
NEBF	Non-exclusive Breastfeeding
NGOs	Non-Governmental Organizations
NVD	Normal Vaginal Delivery
PCBS	Palestinian Central Bureau of Statistics
PHCCs	Primary Health Care Centers
UAE	United Arab Emirates
UNICEF	The United Nation Children’s Fund
UNRWA	United Nations Relief and Works Agency for the Refugees of Palestine in the Near East
WB	West Bank
WHO	World Health Organization

Chapter One

1.1 Introduction

Mothers' milk is the most cost-effective and highly nutritive source for the infant to prevent infections such as pneumonia and diarrhea by protecting the immune system and promoting cognitive and physical development (Dharini et al., 2020). Exclusive breastfeeding (EBF) is defined as giving breast milk only to the infant, without any additional food or drink, not even water in the first six months of life, with the exception of mineral supplements, vitamins, or medicines (Hossain et al., 2018 & World Health Organization - WHO, 2014).

Complementary feeding (CF) is defined as the process of starting solid food when breast milk alone is no longer sufficient to meet the nutritional requirements of infants, and therefore, other foods and liquids are needed along with breast milk (WHO, 2019). CF is extremely essential and typically covers the period from six to 18-24 months of age, therefore, a proper CF should consist of foods that are rich in energy and in micronutrients, free from contamination, without much of salt or spices, easy to eat and easily accepted by the infant, in an appropriate amount, easy to prepare from family foods, and at a cost that is acceptable by most families (Adhikari et al., 2014).

The United Nation Children's Fund (UNICEF, 2018) recommends initiation of breast feeding (BF) within the first hour after birth; EBF for the first six months of age and continuation of BF for up to two years of age or beyond in addition to adequate complementary foods (Idris et al., 2015). In this regard, mothers have an important role in feeding their infants appropriately in order to have normal growth of their infants. To achieve that, mothers should have adequate knowledge and practice of EBF and CF in order to feed their infants adequately to meet their needs for growth.

Several studies were conducted to assess level of knowledge and practice of EBF. A cross-sectional study carried out by Dharini et al. (2020) found that 93% of mothers had knowledge of early initiation of BF, but only 87.1% of the children were given BF within one hour of birth and EBF practices were followed in 94% of the mothers, and statistically significant association was found between EBF and age < 25 years, socio-economic status and education. In addition, a systematic review conducted by Dukuzumuremyi et al. (2020) to examine the status of mothers' knowledge and practices related to EBF reported that almost 96.2% of mothers had ever heard about EBF, 84.4% were aware of EBF, and 49.2% knew that the duration of EBF was the first six months only, 42.0% of mothers preferred to feed their babies for the first six months breast milk alone, and 55.9% of them had practiced EBF for at least six months.

Complementary feeding should be started at six months of age, and knowledge and practice of CF is influenced by several factors. Venugopal and Chandrashekar (2016) found that few mothers have correct information about CF, 23% of mothers started CF at six months of age. 21.6% of mothers used commercial foods. Factors that affected late weaning included having male child, illiterate mothers, low socio-economic status and living in rural areas. Another study found that 61% babies were breastfed within 1 hour of birth, 33% were given pre-lacteal feeding, 19% were given complementary feed on time, 55.3% had good minimum meal frequency, and 47.70% were given minimum number of food groups and 26.5% were practicing good minimum acceptable diet (Ulak et al., 2020).

In Palestine, a study carried out in West Bank found that 69.7% of infants aged 0-6 months were exclusively breastfed and only 14.3% were exclusively formula fed. Older mothers at marriage, and cesarean birth were negatively associated with EBF (Musmar and

Qanadeelu, 2012). In the Gaza Strip (GS), Jalambo et al. (2018) found that 48.4% of pregnant mothers received BF counselling, 88% of respondents knew that breast milk was the best infant food, 94.8% of the respondents agreed that complementary feeding should be introduced to the baby after 6 months of age, and 87.2% knew that EBF extended through the first six months of age. The majority of respondents (98%) mentioned that they will start breastfeeding directly after delivery and 96% of them will avoid milk formula and other liquids after delivery at the hospital. More than ninety percent (90.8%) of the respondents believe that CF should be started after six months of age.

Another study carried out by El Kishawi et al. (2018) found that 97.8% of mothers practiced BF, whereas low proportion of mothers (24.4%) practiced EBF for 6 months, and 75.6% of the mothers introduced CF to their infants at an early age. Moreover, Iellamo et al. (2020) found that 62.75% of mothers practiced early initiation of BF and 42% confirmed that their newborns were given liquids other than breast milk during the first three days of life, 50% of mothers addressed breast milk insufficiency by drinking additional fluids and 40% by using infant formula. Furthermore, Alkhlot (2018) found high positive perception about BF among mothers in the GS as 94% of mothers in the case group stated that breast milk contains all the essential nutrients for a newborn, 84% thought that breast milk alone without even water is sufficient for the baby in the first six months, 96% agreed that breast milk is more easily digested than formula, and 94% mentioned that colostrum contains essential antibodies necessary to help the child's immune system.

Up to the researcher's knowledge, there is few studies about mothers' knowledge and practice of EBF and complementary feeding in the GS, therefore, this study was conducted to gain insight about the level of knowledge and scope of practicing BF and CF during infancy.

1.2 Research problem

Breastfeeding is important because of the many benefits that can be gained for babies, mothers, and communities. Breastmilk contains many factors which help protect against infection and inflammation and contribute to the development of the child and the components of breast milk provide the needed nutrition for babies and boost the baby's immune system (Australian Breastfeeding Association, 2017). In Palestine, participation of women in the work-force accounted for 21% (Palestinian Central Bureau of Statistics – PCBS, 2019), which means that many women in the reproductive age are employed or working outside their homes, thus their practice of EBF and CF of their infants may be altered.

Inappropriate feeding of infants will lead to malnutrition and morbidity. A study carried out in GS by Albelbeisi et al. (2018) indicated that at age of six months, the prevalence of underweight and stunting were 5% and 9% but at 24 months, the prevalence was 4% and 20% respectively. Wasting was highest at 6 months (10%) but decreased to 3% at 24 months. Significantly more girls were stunted at 9, 12 and 18 months, underweight at 24 months and waste at 12 months. In addition, Yassin et al. (2016) found that wasting was significantly higher among non-exclusively breastfed children (OR= 2.1, P= 0.010) and among children who breastfed ≤ 12 months (P= 0.021). Early introduction of CF increased wasting by 2.8 times (OR= 2.8, P= 0.001). Children with poor appetite had highest frequency of wasting ($\chi 2$= 6.139, P= 0.046).

To enhance compliance with practicing EBF and CF, there is a need to improve mothers' awareness about the importance of timely implementation of EBF and the quality of CF for normal growth and development of the baby. In order to improve the awareness of mothers towards EBF and CF in the GS, knowledge and practice were investigated to identify their level of knowledge and practice of EBF and CF, and to identify factors that affect level of knowledge and practice.

1.3 Justification of the study

Maintaining adequate nutrition to infants during the first year of life is very critical for their normal growth and development. Thus, EBF during the first six months of age followed by introduction of CF after six months is essential to meet the requirements of infants' normal growth and development. If the mother has low knowledge about appropriate feeding patterns, she will be unable to provide her baby with adequate healthy nutrients, and that will have negative effect on their growth, and increase morbidity.

According to Olatona et al. (2017), CF education targeting behavioral change especially among young, single and uneducated mothers in developing countries is important to reduce child morbidity and mortality. Reduction of child malnutrition could be attained through appropriate CF, therefore, improving knowledge and practices among mothers is essential step for healthy feeding patterns.

1.4 General purpose of the study

The general purpose of the study is to assess mothers' knowledge and practice regarding breast and complementary feeding of infants in the Gaza Strip.

1.5 Specific objectives of the study

- To determine the level of mothers' knowledge about exclusive breastfeeding and complementary feeding of their infants.
- To identify the level of mothers' practice of exclusive breastfeeding and complementary feeding of their infants.
- To identify the relationship between knowledge and practice of exclusive breastfeeding and complementary feeding.

- To examine the association between mothers' knowledge about exclusive breastfeeding and complementary feeding and sociodemographic variables (age, level of education, work status, monthly income, number of deliveries).
- To examine the association between mothers' practice of exclusive breastfeeding and complementary feeding and sociodemographic variables (age, level of education, work status, monthly income, number of deliveries).

1.6 Questions of the study

- What is the level of mothers' knowledge about exclusive breastfeeding and complementary feeding of their infants?
- What is the level of mothers' practice of exclusive breastfeeding and complementary feeding of their infants?
- Is there a relationship between knowledge and practice of exclusive breastfeeding and complementary feeding?
- Is there an association between mothers' knowledge about exclusive breastfeeding and sociodemographic variables (age, level of education, work status, monthly income, number of deliveries)?
- Is there an association between mothers' knowledge about complementary feeding and sociodemographic variables (age, level of education, work status, monthly income, number of deliveries)?
- Is there an association between mothers' practice of exclusive breastfeeding and sociodemographic variables (age, level of education, work status, monthly income, number of deliveries)?

- Is there an association between mothers' practice of complementary feeding and sociodemographic variables (age, level of education, work status, monthly income, number of deliveries)?

1.7 Definition of terms

Breastfeeding

Breastfeeding is the process of feeding a mother's breast milk to her infant, either directly from the breast or by expressing or pumping out the milk from the breast and bottle-feeding it to the infant (Ballard and Morrow, 2013).

The researcher defines breastfeeding operationally as mother's initiation of feeding her baby breast milk from her breast after birth.

Exclusive breastfeeding

Breast milk only, excluding water, other liquids, and solid foods (WHO, 2013).

The researcher defines exclusive breastfeeding operationally as mother's initiation of feeding her baby breast milk only without additional of water, formulas or any other food during the first six months of infant's age.

Complementary feeding

Complementary feeding is defined as the process starting when breast milk alone is no longer sufficient to meet the nutritional requirements of infants, and therefore other foods and liquids are needed, along with breast milk. The transition from exclusive breastfeeding to family foods – referred to as complementary feeding – typically covers the period from 6 - 24 months of age, even though breastfeeding may continue to two years of age and beyond (WHO, 2019).

The researcher defines complementary feeding operationally as the introduction of other types of food either solid or liquid along with breastfeeding after the sixth month of age.

Knowledge

Knowledge is a familiarity, awareness, or understanding of someone or something, such as facts, skills, or objects (Cambridge Dictionary, 2020).

The researcher defines knowledge operationally as measured by the total scores obtained by study participants on the knowledge about breast and complementary feeding questionnaire.

Practice

Practice is defined as something that is usually or regularly done, often as a habit, tradition, or custom (Cambridge Dictionary, 2020).

The researcher defines practice operationally as measured by the total scores obtained by study participants on the practice of breast and complementary feeding as reported through the questionnaire.

1.8 Context of the study

1.8.1 Sociodemographic context

Palestine occupies an area of 27,000 Km^2, expanding from Ras Al-Nakoura in the north to Rafah in the south. The Palestinian territories is divided into three areas separated geographically; the West Bank (WB) 5.655 Km^2, GS 365 Km^2 and East Jerusalem. GS is a narrow zone of land surrounded by Egypt from the south, the Mediterranean Sea from the west, and by the occupied territories in 1948 from the east and north. More than two-thirds of the total population in GS are refugees. GS consists of five provinces: North of Gaza, Gaza, Mid-zone, Khanyounis, and Rafah (Palestinian Central Bureau of Statistics - PCBS, 2018). The estimated total Palestinian population is 13 million, of them about 5 million live in Palestine (3,008 in WB and over 2 million in GS) with male to female ration 103.4:100. The population density (capita/km^2) is 778 in Palestine (506 in WB and 4,986 in GS) (PCBS, 2019). Natural increase rate accounts for 2.8 (2.5 in WB and 3.3 in GS), average household size 5.0 (4.6 in WB and 5.5 in GS) (PCBS, 2018). Crude birth rate is estimated at 30.2 live birth/1000 population (27.7 in WB and 33.9 in GS), while crude death rate estimated at 3.7 death/1000 population (3.9 in WB and 3.5 in GS), and fertility rate estimated at 4.4 baby/woman (4.3 in WB and 4.5 in GS) (PCBS, 2019).

1.8.2 Economic context

The economy in GS is collapsing, suffering from a decade long blockade, with aid flows no longer enough to stimulate growth, which resulted in an alarming situation with every second person living in poverty and the unemployment rate for its overwhelmingly young population at over 70% (The World Bank, 2018). Years of conflict and blockade have left 80% of the population dependent on international assistance while the continuing intra-Palestinian division serve to exacerbate the humanitarian and service delivery crisis on the ground. The economy and its capacity to create jobs have been devastated, resulting in average unemployment rate has reached over 50%, and the number of Palestine refugees relying on the United Nation Relief and Work Agency for Palestine Refugees in the Near East (UNRWA) for food aid has increased from fewer than 80,000 in 2000 to almost one million today (UNRWA, 2019).

In addition, the pandemic of Covid-19 has negative effect on the already weakened economy; many businesses, especially small enterprises, were not able to withstand the burden of months of closure, and many had to shut down permanently. According to the head of the General Federation of Trade Unions in Gaza, between mid-March and mid-

July, nearly 4000 people in GS lost their jobs, at least 50 factories closed, and more than 10,000 taxi drivers have seen a large reduction in their income. The pandemic has also pushed a greater number of households into poverty and food insecurity, with an increase of about 10% in the poverty rate (United Nations Office for the Coordination of Humanitarian Affairs – UNOCHA, 2020).

1.8.3 Health care system

The Palestinian health care system consists of five major providers: MoH which is the main health service provider, UNRWA, Non-governmental organizations (NGOs), military medical services, and private sector. MoH is operating 27 hospitals (14 in WB and 13 in GS) and 743 PHC centers (583 in WB and 160 in GS). Another main component UNRWA is operating 22 PHC centers in GS (MoH, 2018). The healthcare system has suffered significantly under the blockade. The restrictions, combined with periodic escalations by Israeli military forces and a lack of funding, and the pandemic of Covid-19, have contributed to the decay of medical infrastructure and shortages of drugs, equipment, supplies, and personnel, which added extra pressure on the health system (UNOCHA, 2020).

1.8.4 Mother and child health services

In GS, Mother and Child Health (MCH) care is provided through 48 Primary Health Care Centers (PHCCs), 26 MoH centers and 22 UNRWA centers. The total number of pregnancies in GS in 2019 was 55,292, of them 17,048 registered at MoH centers, and the total number of live births was 55,212, with crude birth rate of 27.7 per 1000 population, and 68.8% of deliveries were at MoH hospitals in GS. Prevalence of anemia was 38% among pregnant women and 73.3% among children 12 to15 month age (MoH, 2019).

1.8.5 Primary health care

Comprehensive primary health care is provided through a wide range of PHCCs distributed in most of the cities and villages in WB and GS. There are 475 governmental PHCCs in Palestine. In GS, there are 158 PHCCs, 51 for MoH, 22 for UNRWA, 80 for NGOs, and 5 for military medical services. PHCCs provide different health services including mother and child health services, vaccination, reproductive health, health education, general medicine, dental care, laboratory services, and X-ray services (MoH, 2020).

Breastfeeding is a basic method to prevent infants' morbidity, therefore, MoH concentrated on BF through health education provided to mothers in the PHCCs, through counseling, booklets, and brochures, aiming to increase BF and decrease the use of artificial milk during infancy. The total number of mothers who received ANC in GS was 55,292 mothers (17,048 in governmental centers and 38,244 in UNRWA centers), the total number of mothers who received reproductive health services was 18,990 mother (5,309 in governmental centers and 13,681 in UNRWA centers), and the total number of mothers who received postnatal health services was 54,263 in governmental and UNRWA PHCCs. The child health clinics provide health services for children metabolic and nutritional problems, and the total number of visits to the child health clinics was 2573 visits (MoH, 2020).

Chapter Two

Conceptual framework and literature review

2.1 Conceptual framework

The conceptual framework is the map that will guide in the application of the research. The diagram demonstrates how the study variables interrelate to determine the extent of breast and complementary feeding of infants.

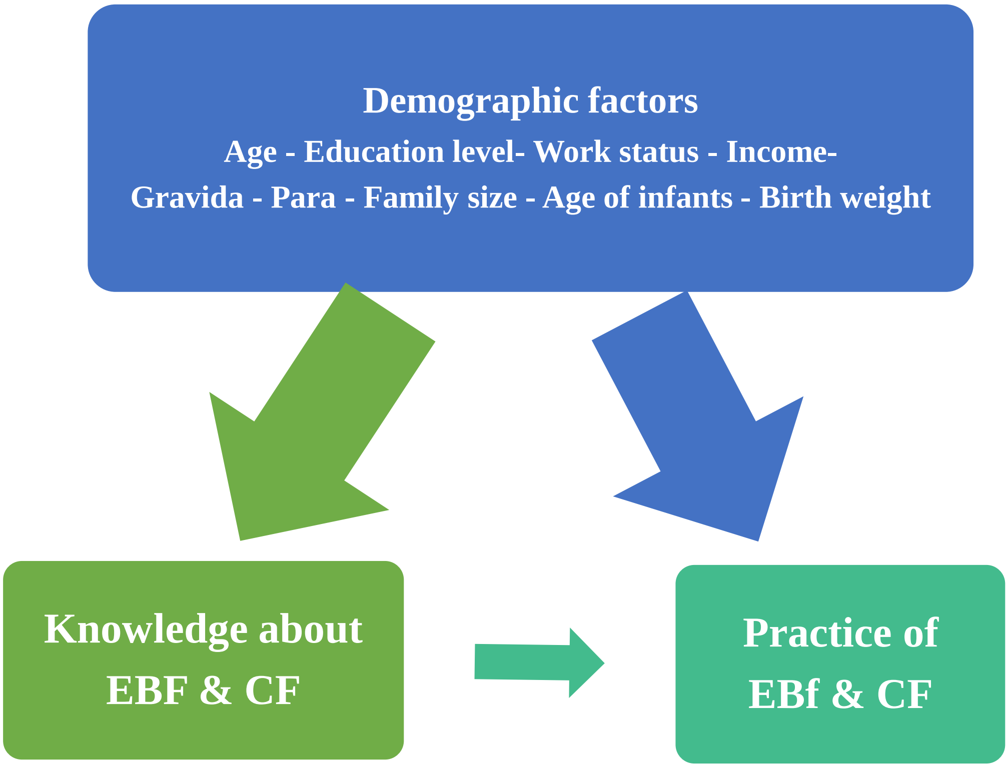

Figure (2.1): Conceptual framework (Self-developed)

Independent variable: The independent variable includes the demographic factors. These factors may affect mothers' knowledge and practice of EBF and CF. Several studies indicated that age of mothers, level of education, and economic status affects their knowledge about EBF and CF, and that was reflected in their practice of EBF and CF (El Kishawi et al., 2018; Alkhlot, 2018; Hossain et al., 2018; and Venugopal et al., 2016).

Dependent variable: Knowledge and practice of EBF and CF represent the dependent variables.

2.2 Literature Review

2.2.1 Background

Mothers' milk is the most cost-effective and highly nutritive source for the infant to prevent infections such as pneumonia and diarrhea by protecting the immune system and promoting cognitive and physical development (Dharini et al., 2020). WHO recommends BF as a main source of food for babies, and encourages mothers to consider BF as the only feeding source in the first six months of age, between six months and two years old, it is recommended that mothers could use other supplemental sources such as water, other liquids, or solid baby food to feed their babies along with breastfeeding (WHO, 2013).

The first weeks of BF are crucial for the maintenance of lactation and reduction of early weaning. Some difficulties occur within the first 24 hours, such as the baby’s difficulty latching on and sucking, nipple pain and injury, breast engorgement, perception of insufficient milk supply, and maternal fatigue. These aspects may affect the woman’s satisfaction with BF, as well as the actual supply of human milk, increasing the chance of introducing other foods, which could lead to early weaning (Javorski et al., 2018, and Barbosa et al., 2017).

Poor BF patterns, low nutrient density and poor quality of CF accounts for nutrient deficiency, illness and infections in children leading to malnutrition at an early age (Qiong et al., 2014). Moreover, inappropriate CF practices during the first two years of childhood drastically increase morbidity, mortality and risks of chronic diseases. Poor CF practices have detrimental effects on overall growth and development of children (Black et al., 2013; Khanal et al., 2013).

2.2.2 Exclusive breastfeeding

2.2.2.1 Benefits of breastfeeding

Breastfeeding's global public health value has been highlighted recently in a Lancet series which estimated in low- and middle-income countries that 13 % of deaths of children under 5 years of age and 820,000 lives could be saved annually by BF via reducing infant respiratory infections by a third and infant diarrheal episodes by 50% (Victora et al., 2016). Breast milk contains IgA antibodies, oligosaccharides and hormones that help protect against a range of allergies, acute respiratory infections, middle-ear infections, gastroenteritis, bacteremia, meningitis, botulism and asthma. There are also indications that it may help prevent childhood leukemia, Crohn's disease and cardiovascular system disorders (Agarwal et al., 2012).

In addition, breast-milk represents an important source of energy and nutrients in children 6 - 23 months of age. It can provide half or more of a child's energy needs between the age of six months and up to the end of the first year, and one-third of energy needs between the first and second year of the child's life. Moreover, breast-milk is also a critical source of energy and nutrients during childhood illness and decreases mortality among malnourished children (WHO, 2016b).

Breastfeeding is recognized as the ultimate food source for babies, and is crucial for both the infant's and mother's health, and has both short-term as well as long-term benefits (UNICEF and WHO, 2015). For children, some of the advantages of breast milk compared to other nutritional sources, are to reduce the risk of acute illnesses, morbidity and mortality (Victora et al., 2016; Sankar et al., 2015), and chronic diseases such as obesity, type 2 diabetes, and cancer (Amitay and Keinan-Boker, 2015). For mothers, breastfeeding has been shown to reduce the risk of maternal hypertension (Park and Choi, 2018), cardiovascular diseases (Peters et al., 2017), type 2 diabetes (Gunderson et al., 2018) and cancer (Jordan et al., 2017). In addition, BF provides psychosocial benefits (Figueiredo et al., 2014).

In addition, a cross-sectional study carried out in West Bank confirmed that EBF during the first six months of life protects against lower respiratory tract infection, otitis media, gastroenteritis, diarrhea, wheezing, and allergies (Qanadelo, 2010).

2.2.2.2 Knowledge and practice of exclusive breastfeeding

Good knowledge and practice of EBF is essential for growth and development of infants. A cross-sectional study carried out to assess the knowledge and feeding practices among mothers of infants in India. The study included 101 mothers and data was collected by using a pre-tested structured questionnaire. The results showed that 93% of mothers had knowledge of early initiation of BF, but only 87.1% of the babies were given BF within one hour of birth and 94% of the mothers practiced EBF (Dharini et al., 2020).

Moreover, a systematic review aimed to examine the status of mothers' knowledge, attitude, and practices related to EBF in East Africa found that almost 96.2% of mothers had ever heard about EBF, 84.4% were aware of EBF, and 49.2% knew that the duration of EBF was the first six months only. In addition, 42.1% of mothers disagreed and 24.0% strongly disagreed that giving breast milk for a newborn immediately and within an hour is important, and 47.9% disagreed that discarding the colostrum is important. However, 42.0% of mothers preferred to feed their babies for the first six months breast milk alone. In contrast, 55.9% of them had practiced EBF for at least six months (Dukuzumuremyi et al., 2020).

The American Academy of Pediatrics (AAP) recommends EBF for 6 months and continued breastfeeding for at least 12 months; thereafter, it can be continued for as long as the mother and the baby desire (Eidelman et al., 2012). In addition, The WHO recommends continued breastfeeding up to two years of age or beyond, and it has been estimated that optimal breastfeeding of children younger than two years, could annually save the lives of over 800,000 children under five years of age (WHO, 2016). Several studies found that the rate of EBF was suboptimal. Among these studies, the study of Hossain et al. (2018) which found that the prevalence of EBF for first six months of an infant’s life was 35.9%. Another study carried out in Uganda found that 56% of mothers initiated breastfeeding in the first hour and 46% practiced EBF, while 25%, 50%, and 75% terminated breastfeeding at 18, 24, and 26 months respectively. The mean number of months of breastfeeding was 14.1, and the maximum was 40 months (Bbaale, 2014).

A cross-sectional survey included 262 mothers of children aged from one to 24 months, found that the rate of EBF was 33.3% for children aged 0-3 months, 22.2% for children aged 4-6 months and 19.4% for children aged 7-24 months (Ogunlesi, 2010). Another study conducted in USA aimed to assess mothers' knowledge, practice, and influencing factors of BF in Minnesota. The findings indicated that mothers' overall knowledge about BF was 95%, and 86.6% of mothers started BF within one hour after birth (Tanash, 2014).

A review survey of 19 studies carried out in countries from the Middle east found that 34.3% of Middle Eastern newborns received BF within one hour of birth, and only 20.5% were fed only breast milk for the first 6 months (Alzaheb, 2017). Higher rate of BF observed in a study carried out in Turkey as 97.2% of mothers breastfed their babies immediately after birth, the mean time to BF after delivery was 47.8 ± 14.8 minutes, and 40.8% of the mothers complied with the WHO recommendation for early initiation of breastfeeding (EIBF). Furthermore, 59.8% of the mothers exclusively breastfed their children for 6 months, and only 12.3% of mothers breastfed their children for at least 12 months (Demir et al., 2020).

In Arab countries, there are variations in knowledge and practice of EBF between countries, and that could be attributed to cultural and religion believes. In addition, the employment and economic status play an important role in EBF and feeding practices as a hole. In this regard, a study carried out in United Arab Emirates (UAE) to assess breastfeeding knowledge, attitudes, and practices among women residing in Abu Dhabi. The study included 344 mothers. The results showed that EBF for 6 months was reported by only16.9% of mothers, 28.7% of the mothers were breastfeeding and planning to continue after the child was ≥24 months (Al Ketbi et al., 2018). Another study aimed to identify the prevalence of EBF in Saudi Arabia and Egypt. The results showed that 65% of Egyptian mothers and 14% of Saudi mothers practiced EBF. In addition, 86% of Saudi mothers and 33% of Egyptian mothers were unsatisfied with EBF. The low prevalence of EBF in Saudi mothers attributed to: EBF not enough to satisfying the baby, not applicable outdoors, need effort, and not suitable for working mothers (Elsayed and Al-Dossary, 2016).

In Jordan, the rate of EBF is not optimal, and the trend variation in breastfeeding practice is determined by different factors including antenatal women's attitude and planning which are affected by their awareness and the support they receive. A cross-sectional study aimed to assess knowledge, attitude, support, and planning of breastfeeding among Jordanian women. The study included 600 mothers, and the results showed that 78% of mothers were knowledgeable about breastfeeding benefits and aware of WHO recommendations. More than half received support from their husbands to breastfeed their infants, while less than 20% received counseling from their obstetric providers, 97% reported their intention to breastfeed, and more than half indicated their willingness to breastfeed exclusively (Khasawneh et al., 2020). Another cross-sectional study was conducted in Jordan included 448 mothers who were recruited from three primary health care centers in Aqaba. The findings indicated that 51.4% of mothers breastfed exclusively for less than 6 months and 19.8% breastfed exclusively for 6 months (Dabbour, 2019). Another study examined the rates of initiation and continuation of BF among first-time Jordanian mothers. The results showed that the rate of BF initiation within the first 4 hours after birth was only 13%, the rate of EBF at 6 weeks was 25.5%, and the rate dropped to 2.1% at 6 months (Al dasoqi et al., 2018).

In Saudi Arabia, there is a low prevalence of EBF mothers. A cross-sectional study aimed to estimate the prevalence of, and knowledge about EBF in Saudi Arabia among 202 mothers of infants aged 6–12 months who attended Taif-based well-baby clinic. The results showed that the rate for initiation of BF in the first hour after childbirth was 13.9%. The prevalence of EBF was 16.3%. Knowledge level was very high among participating mothers as 65.3% of mothers scored over 75% of the total knowledge score and 95% got more than half of the questions right. Factors such as having three to six children, and 1-year inter-pregnancy interval were associated with the positive likelihood of EBF. Baby age, birth in a private facility, and university education were associated with better knowledge about EBF (Alsulaimani, 2021). A cross-sectional, community-based study examined the factors influencing the choice of exclusive formula feeding or complementary feeding over EBF in Makkah region, Saudi Arabia. The results showed that 40.7% of the mothers were using CF (a combination of breast and bottle feeding), while only 25.1% were following an EBF strategy. Also, 65.5% of the mothers had tried BF earlier, wherein 64.4% started BF after few hours from delivery and 18.6% of the mothers stated that their breast milk was not sufficient for their babies, and 7.1% of the mothers found that their working conditions were not compatible with BF (Goweda et al., 2021).

In Kuwait, a descriptive study included 1484 mothers found that rates of BF initiation in Kuwait were high (98·1 %) but by the time of discharge from hospital only 36·5 % of mothers were fully breast-feeding, 37·0 % were partially breast-feeding and 26·5 % were already fully formula feeding (Carballo et al., 2017), and in Qatar, the percentage of mothers who exclusively breastfed their children in the first 6 months was 24.3% (Hendaus et al., 2018), while in Sudan most of the mothers knew that BF was nutritious to the baby, and 76.8% of mothers had started BF within the first hour of delivery (Warille et al., 2017).

In Saudi Arabia, a descriptive, cross-sectional study carried out aimed to assess BF Knowledge and determine barriers to EBF among mothers attending the Primary Health Care Centers in Jazan City. The results indicated that most of the study participants understand the health benefits of BF for babies and mothers, but most believe that synthetic milk is the best alternative for working mothers to feed their babies. 66.7% of mothers practiced EBF during the first six months of the child's life, and only 28.9% continued EBF for six months. During the first six months of the child's life, EBF shows a significant relationship with breastfeeding knowledge and barriers. Sixty percent of mothers have ever had any information about BF from their mothers and only 31.4% from hospital staff (Gohal et al., 2021).

In Palestine, several studies conducted, showed that breastfeeding is a common practice, but EBF was practiced less frequently. A cross-sectional study carried out to evaluate data of 690 clinic files from 3 refugee camps in Nablus. The results showed that 69.7% of infants aged 0-6 months were exclusively breastfed and only 14.3% were exclusively formula fed. Moreover, older mothers at marriage, and cesarean birth were negatively associated with EBF (Musmar and Qanadeelu, 2012).

A study carried out by El Kishawi et al. (2018) aimed to assess the practice of exclusive BF among Palestinian mothers in the GS. The results showed that almost all mothers practiced BF (97.8%), whereas a low proportion of mothers (24.4%) practiced EBF for 6 months. In addition, Alkhlot (2018) carried out a case-control study to identify determinants of EBF in the GS. 276 mothers participated in the study (138 in the case group and 138 in the control group). The knowledge about EBF indicated that 96% of mothers from the case group and 92% of mothers from the control group knew that breast milk is more easily digested than formula, 94% of mothers from the case group and 90% of mothers from the control group knew that breast milk contains all the essential nutrients for a newborn child, 84% of mothers from the case group and 64% of mothers from the control group knew that breast milk alone without even water is sufficient for baby for six months, 94% of mothers from the case group and 90% of mothers from the control group knew that colostrum contains essential antibodies necessary to help the child‘s immune system. In addition, Idris et al. (2015) carried out a cross-sectional study in Sudan found that the rate of continuous EBF since birth was 38.0% while the rate based on 24-hour recall was 56.7%.

Breastfeeding is an important public health strategy for improving infant and child morbidity and mortality, improving maternal morbidity, and helping to control health care costs. A cross-sectional study aimed to assess knowledge, attitudes and key breast-feeding promotion and counselling indicators among pregnant mothers in the GS. The sample of the study consisted of 250 pregnant mothers selected from primary health care centers in the GS. The results indicated that 48.4% of pregnant mothers received BF counselling, 88% knew that breast milk was the best infant food, 94.8% of the respondents agreed that complementary feeding should be introduced to the baby after 6 months of age, and 87.2% knew that EBF extended through 6 months of age. The majority of respondents

(98%) will start breastfeeding directly after delivery and 96% of them will avoid milk formula and other liquids after delivery at the hospital. More than 90% of the respondents believe that CF should be started after six months of age. The study concluded that mothers' knowledge about breastfeeding needs to be increased, especially in some aspects of breastfeeding such as colostrum use, the age of weaning, optimum duration of breastfeeding episode and formula milk (Jalambo et al., 2018).

A multisector nutrition assessment carried out in GS found that less than 50% of infants less than six months-old are exclusively breastfed, and more than half of children are not breastfed anymore when they reach their first year. The percentage of infants that are being bottle fed is extremely high, with more than 40% of all children receiving infant formula, a practice that carries additional risks linked to diarrhea, and acute respiratory infections, in an environment with poor access to safe water and sanitation (United Nations World Food Program, 2019).

Another study carried out in GS showed that 63% of mothers practiced early initiation of breastfeeding and 42% confirmed that their newborns were given liquids other than breast milk during the first 3 days of life, 50% of mothers addressed breast milk insufficiency by drinking additional fluids and 40% by using infant formula. Only 18% of women said that they received breastfeeding information during contact with health professionals throughout labour, delivery, and subsequent post-natal care visits. Many mothers during the focus group discussions confirmed using milk to top up or replace breast milk (Alessandro et al., 2021).

2.2.2.3 Factors influencing exclusive breastfeeding

The EBF determining factors have been shown to vary between countries and within the same country as well. Previous studies have indicated several factors that are involved in determining EBF, and these factors are classified as factors related to the mothers and other factors related to infants.

a. Mothers' factors

The success of breastfeeding promotion is influenced by maternal factors. Therefore, it is vital to examine the influence of maternal demographic factors on breastfeeding practices. Mothers' factors associated with EBF include educational level, occupation, knowledge on breastfeeding, breastfeeding counseling during antenatal care (ANC), infant feeding counseling during postnatal care (PNC), intent to exclusively breastfeed before delivery (Mekuria and Edris, 2015). In addition, attitudes towards EBF, timely initiation of breastfeeding, mothers' smoking status, monthly income, type of delivery, place of delivery, residence, socioeconomic status, parity, prelacteal feeding, discarding colostrum, and community beliefs (Asfaw et al., 2015, and Joshi et al., 2014).

Similar results obtained by El Kishawi et al. (2018) which indicated that the practice of EBF was statistically significant among young age of mothers, low child's order, and mothers with few children (P=0. 037). The primary constraints to EBF were attributed to be the perceptions of mothers that breastmilk was not enough for baby's growth, and mothers –in- law influenced the mothers' EBF practices. Also, the results of Alkhlot (2018) indicated that maternal age, onset of BF initiation, offered formula at hospital, and previous babies who received EBF had a significant association with EBF.

A review survey in Middle east countries investigated EBF found that the most frequently associated factors with EBF included maternal age, maternal education, maternal employment, and delivery mode (Alzaheb, 2017). In the UAE, a cross-sectional study found that the following factors were associated with EBF: mothers with female children, and knowledge about breastfeeding, while the factors that were associated with less likelihood of EBF included working mothers, living with relatives, no past EBF experience, and being offered readymade liquid formula in the hospital. The most common reason for stopping breastfeeding was insufficient breast milk production, and the most common work-related reason was inadequate maternity leave (Al Ketbi et al., 2018).

In Jordan, a cross-sectional study found that predictors of EBF planning included: primiparity, positive attitude, and positive husband’s support, while barriers included women’s employment, and low birthweight (Khasawneh et al., 2020). Another study examined the factors associated with BF among first-time mothers. The results reflected that mothers who initiated BF before discharge were older, were employed, had normal vaginal birth, and had undergone antenatal or after-birth BF education. There was no relationship between initiation and continuation of BF and use of medications for labor pain or for induction/augmentation. The only significant relationship was found between the dose of ergometrine and BF failure and painful BF at 6 weeks (Al dasoqi et al., 2018).

In Kuwait, multiple social and health reasons were given for weaning the child. A study carried out by Carballo et al. (2017) showed that nationality, employment status 6 months prior to delivery, mode of delivery, sex of the child, and breast-feeding information given by nurses, were all found to be significantly associated with BF. Few women (5·6 %) got information on infant nutrition and feeding from nursing staff, but those who did were 2·54 times more likely to be still breast-feeding at discharge from hospital. Over 70 % of mothers had enjoyed BF and 74 % said they would be very likely to breast-feed again. Furthermore, a study carried out in South Sudan found that parity and mothers' level of education were significant factors associated with EBF. There was no statistically significant association between occupation, age of the mother, mode of delivery and EBF (Warille et al., 2017).

In addition, a cross-sectional study carried out by Dharini et al. (2020) found that there was statistically significant association between EBF and age < 25 years, socio-economic status and mothers' level of education. Another study carried out by Hossain et al. (2018) reported that less educated mothers were more likely to exclusively breastfeed their infants than higher educated mothers ($p < 0.05$), housewife mothers were more likely to be EBF than working mothers, higher rate of EBF was especially found among mothers from the age group 35 - 49 years old, had more than 4 children, had delivered at home and non-caesarean delivery, took breastfeeding counseling, and receiving antenatal and postnatal care.

Moreover, the results of Tanash (2014) reflected significant association between BF and mothers' age, level of education, and family income. Also, the results showed that 47% of the mothers are employed and 30% of the mothers reported that their workplace provides a private place to express breast-milk and breast feed and provides a refrigerator to store breast-milk. Another study confirmed that maternal morbidity, maternal breast health and maternal knowledge on breastfeeding issues had significant associations with EBF (Idris et al., 2015). Other factors that increase the probability of early initiation and EBF, include hospital delivery, and prenatal care, while birth intervals less than 24 months increased the risk of early termination of BF (Bbaale, 2014).

Early initiation of breastfeeding (EIBF) is associated with better health of the mothers and reduced risk of neonatal mortality. In this regard, the study conducted by Ogunlesi, (2010) showed that mothers with secondary education and higher, clinic-based antenatal care and delivery in health facilities initiated BF within one hour of birth, avoided pre-lacteal feeding and practiced EBF for the first six months of life, while maternal age and parity did not have any advantage on BF practices. Delivery of children outside health facilities strongly contributed to delayed initiation of breastfeeding, and failure to breastfeed exclusively, and maternal education below secondary level strongly contributed to failure to practice EBF. In addition, the results of Senanayake et al. (2019) found that mothers who have higher education, frequent ANC visits and birthing in a health facility were associated with EIBF.

In contrary, birthing through caesarean, receiving delivery assistance from non-health professionals and residing in rural areas of the Central region were associated with delayed EIBF. Moreover, the results of Islam et al. (2019) showed that mothers living in rural areas were more likely to practice EIBF, while mothers who were obese or overweight, and had secondary or higher education were less likely to provide early BF to their newborn babies compared to their counterparts. Those who delivered by caesarian-section were less likely to perform EIBF while those who attended an antenatal care clinic more than 3 times were more likely to perform EIBF.

Another study examined EBF associated factors in 13 African countries, found that EBF decreased significantly as the infant age increased. Mothers with at least primary education, older mothers (35-49 years), and those who lived in rural areas were significantly more likely to engage in EBF. Mothers who made four or more antenatal visits were significantly more likely to exclusively breastfeed their babies compared to those who had no ANC visits (Agho et al., 2019).

Despite the benefits of EBF for infants and their mothers, and adoption of various WHO strategies on promotion of EBF, the increase in the rate of EBF has been very slow in many countries. The study of Manyeh et al. (2020) showed that the proportion of mothers who exclusive breastfed for 6 months in the study was 71.0%. Mothers aged 25-29 and 30 + years are 93 and 91% respectively more likely to practice 6 months EBF compared to those aged < 20 years. The employed mothers practicing 6 months EBF is 36% less likely compared to those unemployed. Also, there is a higher chance that 45% of mothers with a household size of more than five members to practice EBF compared to those with household size of less than six.

A cross-sectional, multicenter study was conducted in the United Arab Emirates to investigate the prevalence and factors associated with delayed initiation and cessation of BF among working mothers with children under the age of two years in Abu Dhabi. The results showed that 37.6% of mothers were working, of them, 35.8% mothers delayed initiation of BF, and 59.2% stopped BF. Factors associated with delayed BF initiation among working mothers were older mother age, being of non-Arab nationality, CS delivery, non-rooming-in, and mothers with low birth weight children. The main factors associated with cessation of BF were being of non-Arab nationality, and mother with high-income rating. The study highlighted the need for actions to improve the working mothers' conditions in order to promote optimal BF practices, including both early initiation and continuation of breastfeeding among all mothers regardless of employment status (Taha et al., 2021).

A review study explored the interventions that empower mothers to practice EIBF. The findings reflected that education was mostly used as women's empowerment indicator in EIBF intervention. Additionally, barriers to EIBF included CS and postoperative pain, lactation problems and pregnancy complications, mothers' social and demographic factors, mothers' lack of professional support. Facilitators of EBF included mothers' positive behavior in relation to educational level, completion of ANC, poor economic situations of mothers (Hadisuyatmana et al., 2021).

Another study carried out in Italy found that women who had a higher education breastfed in a greater proportion. Having CS moderately impaired BF uptake, with an almost double chance of declining EBF. Starting BF within one hour from delivery showed a significant facilitating effect. Rooming-in had a strong facilitating effect on EBF (Ragusa et al., 2021). Another study assessed initiation of BF from childbirth to discharge from the hospital. The results indicated that the percentage of women who breastfed was 88%, of whom 45% did EBF. Only 35% of women who had CS adopted EBF. Rooming-in was not associated with an increase in BF. Attendance to prenatal courses and the mother's education level played a minor role in influencing the mother's decision in BF (Ragusa et al., 2020).

b. Infants' factors

Several infants' factors are associated with EBF. Gender of the infant is considered a determinant factor for EBF. A community-based cross-sectional study conducted in India found that the infants' sex is significantly associated with EBF (Basu et al., 2018), while the results of Azzeh, (2017) and El Kishawi et al. (2018) found that there were no significant association between gender of infants and EBF. In addition, Asfaw et al. (2015) reported significant association between infants' age and EBF, and the results of Alkhlot (2018) found that low birth weight was a significant factor associated with EBF. Moreover, Idris et al. (2015) reported that infant age and infant morbidity had significant associations with EBF. In addition, Hadisuyatmana et al. (2021) found that babies' condition, and babies' size at birth are factors that affect EIBF, while Al dasoqi et al. (2018) reported that infants’ birth weight and gender were not associated with BF initiation.

2.2.2.4 Barriers to breastfeeding

Many parents experience obstacles to achieving BF goals, leading to reduced rates of BF initiation and continuation. Despite efforts to increase rates of BF initiation and continuation, inequities still persist. The factors that influence an individual’s desire and ability to breastfeed are varied and include individual parent considerations; practitioner influences; hospital barriers; societal factors, such as workplace and parental leave policies; access to lactation support; and social support. A multidisciplinary approach that involves community, family, parents, and health care professionals will strengthen the support for parents and help them achieve optimum breastfeeding (American College of Obstetricians and Gynecologists, 2021).

Some women face difficulty in initiating BF. The main factors indicating difficulties to initiate the BF were inadequate attachment of the baby to the breast, baby response to the contact with the breast, and breast disorders. Factors associated with postpartum breast disorders included adolescent mothers, maternal schooling, and supplement provision to the newborn at the hospital (Barbosa et al., 2017).

Cesarean section is a factor for the inability to initiate and sustain BF. A study carried out in Canada found that women who delivered by planned CS had no intention to breastfeed or did not initiate BF when compared to women with vaginal delivery (VD) and emergency CS. The results also found that 41% of women who delivered by emergency CS were found to have a higher proportion of BF difficulties compared to 29% of women who had VD and 33% of women who had planned CS (Hobbs et al., 2016). Another study conducted in China reported that CS was significantly associated with the unsuccessful initiation of BF and delayed initiation of BF when compared with VD. More importantly, for mothers who had initiated BF, CS was associated with significantly higher risks of an inability to sustain full BF (Wu et al., 2018).

A cross-sectional study carried out in Egypt to identify barriers to BF. The sample of the study consisted of 370 mothers of infants aged two to six months. The results showed that 60% of mothers came from the rural area, and 55.1% were housewives, 61.6% had moderate socioeconomic status. Only 28.6% of infants were exclusively breastfed. The most prominent barriers to EBF were lack of health education about BF (84.1%), hungry infant (43.2%), nipple fissures and soreness (40.2%), easiness of artificial feeding (39.4%), and belief of insufficient milk supply (37.9%) (Shaheen et al., 2018).

A cross-sectional study was conducted in India, aimed to determine the prevalence of non-exclusive breastfeeding (NEBF) among the high-risk children and the factors associated with NEBF. The results showed that 56.3% of children were males and 87% had birth weight <2500 g. Nearly three-fourths of the mothers were <30 years of age. The prevalence of NEBF was 49.3%. There was a significant association between NEBF and employment status of the mother, NEBF in previous child, and EBF at the point of discharge. The barriers reported by the mothers leading to NEBF were insufficient or less milk secretion, poor BF attachment, perceived thirst and poor maternal health (Rynjah et al., 2021).

There are some beliefs that interfere with the practice of EBF including the belief that breast milk is very light and has bad odor, BF may affect mothers' appearance, there is fear of the evil eye when BF in public places, breast milk may become unclean, and there is a need of pauses in BF after the child has burped on the breast (Mgongo et al., 2019).

A cross-sectional analytical study aimed to identify the obstacles that hinder the continued EBF of mothers working in primary health care in Saudi Arabia. The sample of the study consisted of 280 mothers working in PHC. The results found that 69.5% of participants reported that an early return to work was the most common barrier that prevented continued EBF, followed by 66% who responded that an unsupportive working environment had prevented them from EBF. Inadequate breast milk from the mother is an obstacle identified by 43.5% of the study participants, and about 42.5% of the mothers stated that BF takes a lot of time from the mother's daily routine, so the time constraints are an obstacle to continued EBF. In addition, 96% of the study participants reported that working environments in the field of PHC did not contain suitable places to breastfeed or pump breast milk; 77.5% of mothers stated that there were no facilities for storage of milk expressed during working hours. A working mother could not benefit from breastfeeding breaks during the workday in 96.5% of the cases studied, and 60% of the women attributed that to the existence of a strict work schedule within the work environment (Al-Katufi et al., 2020).

2.2.2.5 The relationship between knowledge and practice of exclusive breast feeding

Knowledge is an important factor as prerequisite to practice of EBF. In this regard, the study of Alkhlot, (2018) found that 88.4% of mothers from the case group and 82% of mothers from the control group were knowledgeable about EBF, and that 73.9% of mothers from the case group and 52.8% of mothers from the control group-initiated BF within the first hour after birth. Several studies examined the relationship between knowledge about EBF and practice of EBF, and these studies found a gap between knowledge and practice of EBF. The study of Al Ketbi et al. (2018) reported that although breastfeeding knowledge was generally good, breastfeeding practice was still suboptimal, while the study of Manyeh et al. (2020) indicated that there was high rate of EBF. In addition, the study of Mundagowa et al. (2019) reported that despite the majority of mothers (89%) had knowledge about EBF and (84%) expressed a positive attitude towards EBF, but only 36% practiced EBF.

2.2.3 Complementary feeding

2.2.3.1 Benefits of complementary feeding

The WHO and UNICEF Global Strategy for Infant and Young Child Feeding recommended on what, when and how children should be fed during the period 6-24 months of age. It recommends that at the age of six months, solid, semi-solid and soft food will be introduced, and breastfed children at age 6 - 8 months need to eat at least two meals per day while those ages 9 - 23 months must eat a minimum of three meals per day (Ahmed and Salih, 2018).

Inadequate quantities and quality of CF, inappropriate child feeding practices and high incidence of infections have an unfavorable effect on health and growth in children in the first two years of age. Even with zoptimum BF, children will become stunted if they do not obtain both sufficient dietary diversity and meal frequency after the first six months of age (WHO, 2008). The timely introduction; quality; quantity and appropriateness of complementary food are essential to ensure children adequate growth and mental development (Reinbott, 2016).

2.2.3.2 Knowledge and practice of complementary feeding

Complementary feeding is essential and covers the period from 6 to 18-24 months of age. WHO recommends introducing complementary feeding only from the seventh month onwards (WHO, 2005) because, at this age, breast milk alone is no longer sufficient to maintain the infant’s recommended daily allowances of nutritional requirements to enhance growth.

Children are fed small quantities of solid and semi-solid foods while continuing to breastfeed up to age 2 years or beyond. The amount of food is increased gradually from 6 to 23 months, which is the period of transition to eating the regular family diet. This period is characterized by an increase in the prevalence of malnutrition because of poor feeding practices and infections (Cumming, 2010). Feeding practices not meeting the need and requirements of children increases the risk of becoming undernourished and other health consequences even leading to death (Dewey, 2013).

A community-based cross-sectional study was conducted to assess CF practices and associated factors in the selected urban area of Nepal. The sample of the study consisted of 237 mothers having children aged 6-23 months. Pretested structured questionnaire was used to collect data using a face-to-face interview. The results showed that 19% of children were given CF on time, 55.3% had good minimum meal frequency, 47.70% were given minimum number of food groups and 26.5% were practicing good minimum acceptable diet, and 84% of participants included processed food as a part of CF which is not a good practice (Ulak et al., 2020).

A prospective study carried out in India, aimed to assess the knowledge, attitude and practices regarding CF among mothers, and its effect on growth of the child. The sample of the study consisted of 500 mothers with children between 6 to 24 months of age. Data was collected using a self-administered, predesigned structured questionnaire. The results showed that 42.0 % of mothers knew that CF should be started by 6 - 7 months, 26.8% by 8 - 9 months, 20.0 % by 10 -12 months, 1.2% by > 12 months and 4.2 % had no idea about CF. The knowledge regarding the consistency, amount and type of CF to be started was also very poor. The mean age of introducing CF was 8 months, 30.8% of mothers started CF at 6 months of age, 5.8% by 4 - 5 months, 9.8 % by 7 months, 24.4% by 8 - 9 months, 19.8% by 10 - 12 months and 1.4 % by 13 - 24 months, while 8% had not started CF. Reasons for CF indicated that 61.4% of mothers started CF because of insufficient milk, 36.6% of mothers started CF as they felt the child required more than milk, 6% of mothers started CF as the child was sick and not drinking milk. Most common reason for delayed CF in 23.4% mothers was the child not accepting CF and vomiting or spitting it out (Sethi et al., 2017).

Complementary feeding is a transition from EBF to family foods. It is a vulnerable period in which malnutrition starts in many infants, contributing significantly to the high prevalence of malnutrition in children under five years of age worldwide. Achieving appropriate CF of young children is a crucial milestone in efforts to enhance survival and promote healthier growth and development of children (Menon, 2012). Suboptimal infant and young child feeding practices are prevalent worldwide and are a key determinant of childhood undernutrition, especially between the ages of 3 to 24 months; specifically, the proportion of infants introduced to CF in a timely manner remains low in many countries (Owais et al., 2019).

A cross-sectional study conducted to assess mothers' knowledge and practice of CF in India. The sample of the study consisted of 500 mothers with children 6-24 months of age. Data was collected using a self-administered, semi-structured questionnaire. The results showed that the mean age of CF was 8.24 months, 23% of mothers started CF at 6 months of age, and 21.6% of mothers used commercial foods (Venugopal and Chandrashekar, 2013). Another cross-sectional study conducted in Bangladesh found that CF initiation was early for 7%, on time for 49%, and late for 44% of infants. Only 19% of mothers knew the WHO recommended age for CF initiation (Owais et al., 2019).

Complementary feeding needs to be introduced from the age of six months as recommended by WHO and UNICEF in the World Health Assembly resolution in 2002 and the global strategy of infant and young child feeding in 2003 (WHO, 2001). Adequate CF practices are important for ensuring optimal nutritional status of children under-five. However, in Arab countries, despite adequate CF practices, still the nutritional status of children is far from optimal. In this regard, a cross-sectional, analytical study carried out in Egypt, included 333 mothers of infants attending two primary healthcare centers for vaccination sessions. The results indicated that the majority of mothers initiated artificial feeding during the first month of life, and rural mothers tended to introduce different foods earlier than urban mothers did. Minimum dietary diversity was achieved by 50.9% of urban infants aged ≥ 6 months (≥ 4 food groups), compared with 25.9% of rural infants, and minimum recommended meal frequency for age was fulfilled for 51.9% of urban and 29.6% of rural infants. More than 85% of mothers expressed their need for additional knowledge, and more than half identified the PHC center as the appropriate source for information (Kamel et al., 2020).

In Jordan, a cross-sectional study indicated that introduction of CF at less than 6 months old occurred in 45.3% of infants, and early initiation of CF was associated with childbirth weight, type of delivery, and pacifier use (Dabbour, 2019).

In Saudi Arabia, a descriptive, cross-sectional study included 1700 mothers showed that 83% of infants were introduced to CF under six months of age, while, merely 13% of infants were optimally introduced to CF. Nearly 42% of children ages 6-23 months were not being fed the minimum number of meals per day during this critical period of growth and development. The prevalence of the minimum acceptable diet was about 35%, indicating that 65% of the Saudi infants and children were deprived from being fed frequently throughout the day and their meals were not nutrient-dense or coming from diversified food groups. Early introduction, less frequent and diversified infants CF were the major determinants of optimal complementary feeding practices in KSA (Ahmed and Salih, 2019).

4.2.3.3 Factors influencing knowledge and practice of complementary feeding

Infant feeding practices play a main role in determining optimal development of infants. Knowledge about CF does not necessarily translate to practice. Poor infant feeding practices have adverse consequences for the health and nutritional status of children, which in turn has adverse consequences on the mental and physical development (Mihretie, 2018).

Globally, undernutrition is responsible for at least 35% of deaths in children less than 5 years of age and estimated 6% of under-five deaths can be prevented by ensuring optimal CF especially the dietary diversity and meal frequency (Agize et al., 2017). According to the results obtained by Venugopal and Chandrashekar (2013), several factors influence the decision for CF including: male child, illiterate mothers, low socio-economic status and rural mothers tend to wean late. Parity had no influence on CF age. There was significant association between delayed complementary feeding and malnutrition of the child. The study concluded that there was lack of knowledge among mothers regarding CF, and mean age of CF was delayed due to improper information, false beliefs and attitudes, illiteracy, low socio-economic status and rural mothers.

The decision when and how to start complementary feeding is a complex issue among mothers and there are various factors influencing complementary feeding. Understanding the decision-making process, social beliefs, knowledge, attitude and practices of complementary feeding is an important step prior to designing an intervention strategy to prevent malnutrition in children. Poor feeding practices including breastfeeding and complementary feeding, coupled with high rates of infectious diseases, are the principal proximate causes of malnutrition during the first two years of life (Sethi et al., 2017). Another study found significant correlation between age of the child, ethnicity, religion, family income and knowledge about CF (Seram and Punchihewa, 2017).

There is a consistently noted link between proper infant feeding and the educational level of parents. In this regard, Bandara et al. (2015) found that mothers' education has a significant impact on appropriate infant feeding. Another study carried out by Senarath et al. (2012) reported that determinants of not receiving acceptable diet were lower maternal education, shorter maternal height, lower wealth index, lack of postnatal visits, unsatisfactory exposure to media and acute respiratory infections.

The period of transition from breastfeeding to other foods and liquids, is a very vulnerable period when malnutrition is likely to start in many infants and young children, if appropriate feeding practices are not employed. A descriptive cross-sectional study was conducted in selected primary health facilities in Nigeria reported that appropriate CF was low (4.2%) and associated with factors such as ANC visits, child welfare clinic attendance and mother's workplace. On the other hand, the Infant and Child Feeding Index categorized respondents into low (11.7%), medium (24.7%) and high (63.6%) scores and were associated with mother's education and household size (Samuel and Ibidapo, 2020).

Poor CF practices have detrimental effects on child growth, development and survival. A cross-sectional study examined determinants of CF practices in Benin. The results indicated that determinants of CF practices are multidimensional and include many interacting factors including socio-economic aspects, farming practices, household demographics, cultural practices and geography. Child age, diversity of food groups produced, income, place of residence, ethnicity, caregivers' occupation, marital status and household size were identified as the main factors affecting CF practices. Reducing women's workload through improved working conditions appears crucial to decrease time burdens and allow more time for child care (Mitchodigni et al., 2017). A community-based, cross-sectional study conducted in Ethiopia found that mothers' age, husbands' education, marital status, and knowledge of mothers were significantly associated with mothers' dietary diversity for 6 - 23-month-old children (Agize et al., 2017).

The number of previous pregnancies and deliveries is another determinant factor for CF. In this regard, a cross-sectional study carried out in Pakistan included 377 mothers. The results showed that the multigravida mothers had more knowledge regarding CF practice compared to primigravida mothers. Educated mothers were found to be more familiar regarding CF practice. Awareness regarding correct age of CF was more accurate in multigravida mothers. The study emphasized the need for efforts to enhance awareness regarding CF practice amongst the primigravida mothers (Junejo et al., 2019).

Several studies carried out in Arab countries About factors affecting CF. A study carried out in Egypt, included 25 governorates. Data retrieved from the Egypt demographic health survey of 2014. The results showed that suboptimal breastfeeding practices with adequate CF were common among higher levels of education and rich mothers, while inadequate CF practices were common among the poor and those with lower levels of education (Abul-Fadl et al., 2019).

2.2.3.4 The relationship between knowledge and practice of complementary feeding

Complementary feeding is defined as the systematic process of the introduction of suitable food at the right time, in addition to mother's milk to provide needed nutrients to the baby (Shrestha et al., 2020). Knowledge and practice of CF are interrelated. It is assumed that having high knowledge will lead to high practice of CF, but this assumption is not necessarily true all the time. In this regard, the study of Ulak et al. (2020) indicated a gap between knowledge and practice regarding initiation and continuation of ideal CF, and the rate of CF was found on declining trend. In addition, a study conducted by Agize et al. (2017) found that 51% of mothers were knowledgeable about CF and dietary diversity but 16% practiced appropriate dietary diversity for their 6 - 23-month-old children.

Complementary foods fill the gap between the total nutritional needs of the child and the amounts provided by breast milk. An interview study carried out in Nepal included 250 mothers found that 64.4% of mothers knew the proper age of initiating CF but only 55.6% of mothers practiced it. Early initiation of CF was done by 34.8% of mothers while 9.6% mothers delayed it beyond 6 months. The study revealed that there was a gap in knowledge and practice among mothers regarding adequate age of initiation of CF, complementary foods, preparation, and practices (Shrestha et al., 2020).

Poor CF contributes to negative growth trends which will lead to increase morbidity and mortality among children. Therefore, educating mothers about CF practices can be very useful for the proper growth and development of children. The results of Owais et al. (2019) reflected that knowledge was not associated with timely CF initiation, and mothers with the most favorable attitudes were more likely to initiate late CF compared to those with the lowest attitudes.

2.2.4 Summary of literature review

Exclusive breast feeding during the first six months of infant's life is critical for the health and wellbeing of the infant. Breast milk provides the necessary nutrients to the infant during this period. Introduction of CF along with BF is recommended after six months of age as the breast milk alone is not enough for normal growth of infants. Review of literature and previous studies reflected variation in knowledge and practice of EBF and CF. Most of the studies revealed suboptimal EBF, and early introduction of CF. Many factors determine the rate and duration of EBF and the decision about CF such as mothers' age, level of education, socioeconomic status, parity, and cultural believes and traditions.

Chapter Three

Methodology

3.1 Study design

The researcher used descriptive, cross-sectional design in this study. This type of design is useful for describing variables of the study as they naturally occur without interference from the researcher. Cross sectional studies are generally carried out on a population at a point of time or over a short period. Also, it examines the association between variables; and characterized as economic, quick and managed easily (Polit and Beck, 2017).

3.2 Study population

The population of the study consisted of all the mothers who attended the well-baby vaccination clinics at governmental PHCCs in all governorates of the GS. According to MoH report (2020), about 16,221 children received vaccination at governmental PHCCs in 2020.

3.3 Sample size and sampling process

The researcher used the survey system to calculate the sample size. The sample of the study was convenient and consecutive, consisted of 375 mothers. Therefore, the biggest PHCC that provide MCH services in each governorate were selected. The number of the sample from each governorate was according to proportion of the population. The mothers who met inclusion criteria have been selected during their attendance to the vaccination clinic. The researcher visited each PHCC for selection of participants and filling the questionnaires.

Determine Sample Size Confidence Level: 95% 99% Confidence Interval: 5 Population: 16221 Sample size needed: 375

Distribution of the study sample was as the following table:

Table (3.1): Sample size and distribution according to governorate

Governorate	Population	No of sample
North Gaza	2436	56
Gaza	8445	196
Middle	849	19
Khanyounis	3664	85
Rafah	827	19
Total	**16221**	**375**

3.4 Setting of the study

The study has been conducted in seven governmental PHCCs in all governorates of the GS (Jabalia Martyrs PHCC, and from Gaza there are three main PHCCs, Al Rimal Martyrs PHCC, Al Daraj PHCC, and Al Zytoon PHCC, Deir Al-Balah Martyrs PHCC, Khanyounis Martyrs PHCC, and Rafah Martyrs PHCC).

3.5 Period of the study

The study has been conducted during the period from February 2021 to November 2021.

3.6 Eligibility Criteria

3.6.1 Inclusion criteria

- Mothers of infants age 7 - 12 months.
- Mothers who attended governmental PHCCs in the GS for vaccination of their children.
- Mothers who are willing to participate in the study.

3.7 Instrument of the study

The researcher developed self-administered questionnaire for data collection. The questionnaire was designed to measure the knowledge and practice of mothers regarding exclusive breastfeeding and complementary feeding (Annex 2 and 3).

The questionnaire consisted of the following parts: sociodemographic characteristics of mothers, characteristics of infants, obstetric history of mothers, knowledge about exclusive breastfeeding, knowledge about complementary feeding, practice of exclusive breastfeeding, and practice of complementary feeding.

Scores of responses on items of the questionnaire were: correct answer (1), and wrong (0).

Table (3.2): Criteria for measurement of knowledge and practice levels

Knowledge level	**Score**
Poor	Less than 60%
Moderate	60% - 79%
Good	80% - 100%

Source: Narayana et al. (2017).

3.8 Validity and reliability

3.8.1 Content validity

Content validity involves evaluation of a survey instrument in order to ensure that it includes all the items that are essential and eliminates undesirable items to a particular construct domain (Taherdoost, 2016). Content validity of the questionnaire examined by a group of experts (Annex 4) in topic content and research methodology to examine the clarity of the items, and ensure that the items cover the domains of the questionnaire and modification of the questionnaire was done accordingly.

3.8.2 Reliability

Reliability concerns the extent to which a measurement of a phenomenon provides stable and consist result. A scale is said to be reliable if repeated measurement made by it under constant conditions will give the same result. The most commonly used measure is the Cronbach Alpha coefficient. Minimum acceptable level of alpha coefficient is 0.7 (Taherdoost, 2016).

3.9 Pilot study

A pilot study was conducted on 37 participants (10% of the sample), in order to test reliability of the questionnaire.

Table (3.3): Cronbach alpha coefficient

Domain	**Number of items**	**Alpha coefficient**
Knowledge about exclusive breastfeeding	14	0.737
Practice of exclusive breastfeeding	10	0.731
Knowledge about complementary feeding	19	0.780
Practice of complementary feeding	19	0.756
Total score	**62**	**0.789**

3.10 Data collection procedure

The researcher visited the seven PHCCs that were included in the study. The researcher arranged for a meeting with the head nurse of each PHCC to inform him / her about the purpose of the study, and to obtain their assistance and help to facilitate data collection.

The researcher explained the purpose of the study to the eligible participants and gave them instructions about the questionnaire before filling the questionnaire. The questionnaire was translated to Arabic language so, the participants can understand the contents of the questionnaire.

Each questionnaire has a consent form in the first page that asks the participants to participate in the study voluntary (Annex 1). Time allocated for each questionnaire was about 20 minutes.

3.11 Data entry and statistical analysis

The data were analyzed by using the SPSS program version 25 by help of a statistician. Analysis of data included: coding the questionnaires, data entry, and data cleaning. Statistical analysis included descriptive and inferential statistics as appropriate.

Descriptive statistics included cross-tabulation, frequencies, percentage, and mean percent. Inferential statistics included Chi square, and Fisher's Exact test.

3.12 Ethical and administrative considerations

Before conducting the study, the researcher obtained agreement to carry out the study from Al- Quds University (Annex 5). Ethical approval letter was obtained from Helsinki Committee in Gaza Strip (Annex 6). Also, approval letter was obtained from MOH (Annex 7). In addition, a consent form was attached to each questionnaire including the purpose of the study, confidentiality of information that will be collected, and instructions to fill the questionnaire.

3.13 Limitation of the study

The study was limited to mothers of children aged seven to twelve months, who are attending the vaccination clinic at governmental PHCCs in the GS only. Mothers who attended UNRWA health centers were not included in the study.

Chapter Four

Results and Discussion

4.1 Descriptive results

4.1.1 Sociodemographic characteristics of study participants

Table (4.1): Sociodemographic characteristics of participants' mothers (n=375)

Variables		n	Percent
Level of education	Prep school and less	43	11.5
	Secondary school	192	51.2
	University	140	37.3
	Total	375	100.0
Work status	Housewife	321	85.6
	Working / employed	54	14.4
	Total	375	100.0
Monthly income	Less than 1000 NIS*	208	55.5
	1000 – 1400 NIS	115	30.7
	More than 1400 NIS	52	13.9
	Total	375	100.0
	Mean= 923.81±583.261NIS		
Family size	4 and less	113	30.1
	5 – 8	207	55.2
	9 and more	55	14.7
	Total	375	100.0
Place of delivery	Governmental hospital	306	81.6
	Private hospital	49	13.1
	Charity hospital	20	5.3
	Total	375	100.0

*NIS= New Israeli Shekel

The sample of the study consisted of 375 mothers, of them 192 (51.2%) have secondary school education, 140 (37.3%) have university education, and 43 (11.5%) have an education of prep school and less, which indicated that most of the study participants have low education. In addition, 321 (85.6%) of study participants were housewives and 54 (14.4%) were working, 208 (55.5%) have an income of less than 1000 NIS, 115 (30.7%)

have an income of 1000 – 1400 NIS, and the mean income was 923.81±583.261NIS which reflected that the majority of study participants have low income.

Regarding family size, 207 (55.2%) have 5 – 8 members, 113 (30.1%) have 4 members and less, and 55 (14.7%) have 9 members and more. Also, 306 (81.6%) of mothers delivered in governmental hospitals, 49 (13.1%) delivered in private hospitals, and 20 (5.3%) delivered in charity hospital. This result indicated that most of the mothers delivered in governmental hospitals.

Table (4.2): Obstetric history of participants' mothers (n=375)

Variables		n	Percent
Number of pregnancies	1 – 3 times	156	41.6
	4 – 6 times	149	39.7
	7 times and more	70	18.7
	Total	375	100.0
Number of deliveries	1 – 3 times	172	45.9
	4 – 6 times	139	37.1
	7 times and more	64	17.1
	Total	375	100.0
Number of live children	1 – 3 children	178	47.5
	4 – 6 children	142	37.9
	7 children and more	55	14.6
	Total	375	100.0
Number of ANC* visits	3 visits and less	81	21.6
	4 – 8 visits	179	47.7
	More than 8 visits	115	30.7
	Total	375	100.0
Time-spacing between pregnancies	2 years and less	254	67.7
	3 – 4 years	73	19.5
	5 years and more	48	12.8
	Total	375	100.0

ANC= Antenatal care

Table (4.2) shows that 156 (41.6%) of study participants were pregnant one to three times, 149 (39.7%) were pregnant four to six times, and 70 (18.7%) were pregnant 7 times and more, 172 (45.9%) delivered one to three times, 139 (37.1%) delivered four to six times, and 64 (17.1%) delivered seven times and more. Moreover, 178 (47.5%) have one to three live children, 142 (37.9%) have four to six live children, and 55 (14.6%) have seven live children and more. This result indicated that about half of the study participants have moderate to big family.

The results also shows that 179 (47.7%) of study participants had four to eight ANC visits, 115 (30.7%) had more than 8 visits, which indicated that the mothers were concerned about their pregnancy and visit the ANC clinic frequently. In addition, 254 (67.7%) had 2 years and less spacing between deliveries, 73 (19.5%) had three to four years spacing, and 48 (12.8%) had 5 years and more spacing between deliveries.

Table (4.3): Characteristics of participants' infants (n=375)

Variables		n	Percent
Gender	Male	181	48.3
	Female	194	51.7
	Total	375	100.0
Age	7.0 – 7.9 months	86	22.9
	8.0 – 9.9 months	173	46.2
	10.0 – 12.0 months	116	30.9
	Total	375	100.0
Gestational age	Less than 37 weeks	49	13.1
	37 weeks and more	326	86.9
	Total	375	100.0
Birth weight	Less than 2500 gram	15	4.0
	2500 – 4000 gram	345	92.0
	More than 4000 gram	15	4.0
	Total	375	100.0
	Mean= 3,257±525.027 gram		
Mode of delivery	NVD*	277	73.9
	CS*	98	26.1
	Total	375	100.0

NVD= Normal vaginal delivery CS= Cesarean section

Table (4.3) presents the characteristics of infants. The results shows that 181 (48.3%) of infants are males and 194 (51.7%) are females, 86 (22.9%) of infants age was 7 – 7.9 months, 173 (46.2%) aged 8 – 9.9 months, and 116 (30.9%) of infants aged 10 – 12 months. The results also showed that 49 (13.1%) had gestational age of less than 37 weeks, and 326 (86.9%) had gestational age of 37 weeks and more, which indicated that most of the infants had normal gestational age.

Regarding birth weight (BW), 15 (4%) of infants had low birth weight (LBW) of less than 2500 g, 345 (92%) had normal BW ranged between 2500 – 4000 g, 15 (4%) had high BW above 4000 g, and the mean BW was 3,257±525.027 g, which reflected that the majority of infants had normal BW. Mode of delivery indicated that 277 (73.9%) delivered by NVD, and 98 (26.1%) delivered by cesarean section (CS).

4.1.2 Information about feeding

Table (4.4): Information about feeding profile of the infants (n=375)

Item	**Yes n (%)**	**No n (%)**
Received information about exclusive breastfeeding during ANC visits	294(78.4)	81(21.6)
Received information about complementary feeding during ANC visits	298(79.5)	77(20.5)
The healthcare providers informed you to breastfeed your baby during the first hour after delivery?	320(85.3)	55(14.7)
When you initiated breastfeeding?		
No breastfeeding	4	1.1
Within first hour after delivery	363	96.8
In the first day	3	0.8
In the second day or later	5	1.3
To which age did you give your baby breastfeeding?		
No breastfeeding	4	1.1
Up to 6 months	114	30.4
More than 6 months	257	68.5
Providing artificial milk?		
Did you give your baby artificial milk?	178(47.5)	197(52.5)
If yes, at which age you gave your baby artificial milk?	n	%
None	197	52.5
One month	169	45.1
2 – 5 months	6	1.6
6 – 12 months	3	0.8

Table (4.4) shows that 294 (78.4%) of mothers received information about EBF during ANC visits, 298 (79.5%) received information about CF during ANC visits, and 320 (85.3%) of mothers said that the healthcare providers informed them to breastfeed their babies during the first hour after delivery. Comparable results obtained by Dukuzumuremyi et al. (2020) who found that 96.2% of mothers had received information about EBF, 84.4% were aware of EBF, while the results of Alessandro et al. (2021) indicated that 18% of women said that they received breastfeeding information during contact with health professionals, and Khasawneh et al. (2020) found that more than half of the mothers received support from their husbands to breastfeed their infants, and less than 20% received counseling from their health care providers, 97% reported their intention to breastfeed, and more than half expressed their willingness to breastfeed exclusively. In addition, the results of Gohal et al. (2021) found that 60% of mothers received information about BF from their mothers and 31.4% received information from hospital staff, while the results of Jalambo et al. (2018) indicated that 48.4% of pregnant mothers received BF counselling.

Regarding initiation of BF, 363 (96.8%) of mothers started BF within the first hour after delivery, 114 (30.4%) of mothers provided their babies BF for 6 months, and 257 (68.5) continued BF for more than 6 months, 178 (47.5%) of mothers gave their babies artificial milk, and 169 (45.1%) of them gave their babies artificial milk at the age of one month.

This result was consistent with the results of Demir et al. (2020) which showed that 97.2% of mothers breastfed their babies immediately after birth, and 40.8% of the mothers complied with the WHO recommendation for early initiation of BF. Moreover, the results of Tanash (2014) indicated that 86.6% of mothers started BF within one hour after birth, and the results of Jalambo et al. (2018) indicated that 98% of the mothers will start BF directly after delivery and 96% of them will avoid milk formula and other liquids after delivery at the hospital.

In contrary, the results were inconsistent with the results obtained by Bbaale (2014) who found that 56% of mothers initiated BF in the first hour, and Alzaheb (2017) found that 34.3% of newborns received BF within one hour of birth, and 20.5% were fed breast milk only for the first 6 months. Moreover, the results of Al dasoqi et al. (2018) found that only 13% of mothers initiated BF within the first 4 hours after birth, the rate of EBF at 6 weeks was 25.5%, and the rate dropped to 2.1% at 6 months, and Alsulaimani (2021) found that the rate of initiation of BF in the first hour after childbirth was 13.9%.

The results of the study reflected that most of the mothers have been informed about EBF and CF by health care providers, and the majority of mothers initiated early BF within the first hour after delivery. Several studies indicated similar results, which is attributed to being knowledgeable about the benefits of BF, which is translated in early initiation of BF. Also, this result revealed that the mothers were concerned about the wellbeing of their infants, thus, they started early BF because they understand that breast-milk contains essential nutrients that meet the nutritional need of the infant.

Table (4.4): Information about feeding profile of the infant (n=375)

Item	Yes n (%)	No n (%)
Did you give your baby complementary feeding along with breastfeeding?	290(77.3)	85(22.7)
When you initiated complementary feeding?		
No complementary feeding	**85**	**22.7**
7 – 7.9 months	18	4.8
8 – 9.9 months	39	10.4
10 – 12 months	28	7.5
Age of starting complementary feeding		
At 4 months	61	16.3
At 5 months	42	11.2
At 6 months	150	40.0
At 7 months	22	5.9
At 8 months	11	2.9
At 9 months	4	1.1
Current method of feeding		
Exclusive breastfeeding	**68**	**18.1**
7 – 7.9 months	15	4.0
8 – 9.9 months	35	9.3
10 – 12 months	18	4.8
Artificial milk only	8	2.1
Breast-milk and artificial milk	52	13.9
Breast-milk and complementary food	128	34.1
Artificial milk and complementary food	77	20.5
Regular food only	**42**	**11.2**
7 – 7.9 months	8	2.1
8 – 9.9 months	20	5.3
10 – 12 months	14	3.8

Table (4.4) shows that 290 (77.3%) of mothers gave their babies CF along with BF, 61 (16.3%) of mothers initiated CF when the baby was 4 months old, 42 (11.2%) initiated CF at 5 months, and 150 (40%) initiated CF at 6 months, 22 (5.9%) initiated CF at 7 months, 11 (2.9%) initiated CF at 8 months, and 4 (1.1%) initiated CF at 9 months. The results of

Sethi et al. (2017) found that the mean age of introducing CF was 8 months, 30.8% of mothers started CF at 6 months of age, 5.8% by 4 - 5 months, 9.8 % by 7 months, 24.4% by 8 - 9 months, 19.8% by 10 - 12 months and 1.4 % by 13 - 24 months, while 8% did not give CF.

The results also showed that 68 (18.1%) provide EBF currently, 8 (2.1%) provide artificial milk only, 52 (13.9%) provide BF and artificial milk, 128 (34.1%) provide BF and CF, 77 (20.5%) provide artificial milk and CF, and 42 (11.2%) provide regular food only.

These results were in accordance with the results of Al Ketbi et al. (2018) which showed that 16.9% of mothers breastfed their babies for 6 months, and 28.7% of the mothers planned to continue breastfeeding after the child was ≥24 months. In addition, the findings of Dabbour (2019) revealed that 51.4% of mothers breastfed exclusively for less than 6 months and 19.8% breastfed exclusively for 6 months. Furthermore, the results of Bbaale (2014) showed that 25% of mothers stopped breastfeeding at 18 months, 50% of mothers stopped breastfeeding at 24 months, and 75% stopped breastfeeding at 26 months, the mean number of months of breastfeeding was 14.1, and the maximum was 40 months. Moreover, a study conducted in GS by United Nations World Food Program (2019) reported that more than 40% of all children receiving infant formula.

It is important to feed the infants EBF during the first 6 months of age as the breastmilk contains all the nutrients needed for the infant during this age. In addition, mothers should not introduce alternative food during the first months because addition of other foods such as artificial milk and formulas predispose the infant to risks of diarrhea and acute respiratory infections. It is recommended to start CF gradually along with breastmilk after 6 months of age, as at this age EBF is inadequate to meet the nutritional needs of the growing infant.

Table (4.5a): Admission to NICU and repeated sickness of infants (n=375)

Item	Yes n (%)	No n (%)
Your baby admitted to NICU	91(24.3)	284(75.7)
Length of stay in NICU (n= 91)		
1 – 2 days	55	60.4
3 – 5 days	20	22.0
6 days and more	16	17.6
Repeated sickness		
Recurrence of baby sickness	72 (19.2)	303 (80.8)
Frequency of sickness (n= 72)		
One time	11	15.3
2 times	15	20.8
3 times	18	25.0
4 times and more	28	38.9

Table (4.5a) shows that 91 (24.3%) of babies have been admitted to NICU, 55 (60.4%) were admitted to NICU for one to two days, 20 (22%) have been admitted for three to five days, and 16 (17.6%) of babies have been admitted to NICU for 6 days and more, 72 (19.2%) of babies had repeated sickness, 15 (20.8%) were sick two times, 18 (25%) were sick for 3 times, and 28 (38.9%) were sick for four times and more.

Repeated sickness of infants is correlated with poor nutrition. These results were consistent with the results of Ogbo et al. (2018) which indicated that diarrhea prevalence was lower in infants aged 0–5 months whose mothers engaged in EBF and predominant BF compared to those who were not exclusively and predominantly breastfed. In contrast, infants aged 6–8 months who were introduced to CF were more likely to experience diarrhea compared to those who did not receive CF.

Nutritional status of infants is correlated with their health status. Diarrhea is one of the most frequent and critical condition that may occur as a result of inappropriate nutrition during infancy. On the other hand, optimal BF practices protect infants against diarrhea-related diseases (Ogbo et al., 2016).

Table (4.5b): Infants' sickness and feeding method (n=72)

Item	n	%
Infants' sickness and breastfeeding		
No breastfeeding	3	4.3
Up to 6 months	23	31.9
More than 6 months	46	63.8
Total	72	100.0
Infants' sickness and complementary feeding		
No complementary feeding	12	16.7
4 months	17	23.6
5 months	10	13.8
6 months	25	34.7
7 months	4	5.6
8 months	4	5.6
Total	72	100.0

Table (4.5b) shows that 46 (63.9%) of sick infants had BF for more than 6 months, while 23 (31.9%) had BF for less than 6 months. The results also showed that 12 (16.7%) of sick infants did not receive CF, 17 (23.6%) received CF at 4 months, 10 (13.8%) received CF at 5 months, 25 (34.7%) received CF at 6 months, 4 (5.6%) received CF at 7 months, and 4 (5.6%) of infants received CF at 8 months. This result indicated suboptimal feeding of those infants, which could be linked to their recurrent sickness.

Reports from WHO indicated that many infants do not receive optimal feeding, and only about 44% of infants aged 0 - 6 months worldwide were exclusively breastfed over the period of 2015-2020. In addition, few children receive nutritionally adequate and safe CF; in many countries less than 25% of infants 6 - 23 months of age meet the criteria of dietary diversity and feeding frequency that are appropriate for their age (WHO, 2021).

4.1.3 Exclusive breastfeeding

Table (4.6): Mothers' knowledge about exclusive breastfeeding (n= 375)

Knowledge about Exclusive Breastfeeding		Correct answer	
		n	**(%)**
1.	I know that I should give my baby breast milk only during the first 6 months of age	282	75.2
2.	Breast milk is healthier than formula milk	346	92.3
3.	Breast milk is digested easier compared to infant's formula milk	332	88.5
4.	Breast milk and formula milk have the same benefit for the baby	293	78.1
5.	Formula milk is more beneficial compared to breast milk	310	82.7
6.	Breast milk causes diarrhea to the baby	329	87.7
7.	Breast milk causes allergy to the baby	317	84.5
8.	Breast milk contains the antibodies needed to strengthen the immune system	343	91.5
9.	Giving the water along with breast milk is necessary for the baby's health during the first 6 months of age.	163	43.5
10.	Giving the juice along with breast milk during the first 6 months of age is necessary for the baby's growth	246	65.6
11.	Giving the infant formula along with breast milk during the first 6 months of age is necessary for increasing baby's body weight.	191	50.9
12	During the first two months of age, the baby needs 8 – 12 feedings /day	291	77.6
13	By the third month, the baby needs 6 – 8 feedings /day	270	72.0
14	Average duration of each feeding is about 30 minutes	274	73.1
	Overall average percentage	**75.94**	

Table (4.6) shows that the highest correct responses was in knowing that breast milk is healthier than formula milk (92.3%), knowing that breast milk contains the antibodies needed to strengthen the immune system of the baby (91.5%), knowing that breast milk is digested easier compared to formula milk (88.5%), while the lowest correct responses were in knowing that giving the water along with breast milk is necessary for the baby's health during the first 6 months of age (43.5%), and knowing that giving the infant formula along with breast milk during the first 6 months of age is necessary for increasing baby's body weight (50.9%). Overall, the average knowledge was 75.94.

This result was comparable to the results of Alkhlot (2018) which indicated that 96% of mothers from the case group and 92% of mothers from the control group knew that breast milk is more easily digested than formula, 94% of mothers from the case group and 90% of mothers from the control group knew that breast milk contains all the essential nutrients for a newborn child, 84% of mothers from the case group and 64% of mothers from the control group knew that breast milk alone without even water is sufficient for baby for six months, 94% of mothers from the case group and 90% of mothers from the control group knew that colostrum contains essential antibodies necessary to help the child‘s immune system. Another study carried out by Jalambo et al. (2018) found that 88% of mothers knew that breast milk is the best food for infants, and 87.2% knew that EBF extends through 6 months of age. Similar results obtained by Khasawneh et al. (2020) who reported that 78% of mothers were knowledgeable about breastfeeding benefits and aware of WHO recommendations. Higher results obtained by Tanash, (2014) which indicated that mothers' overall knowledge about BF was 95%.

Lower results found by Dukuzumuremyi et al. (2020) which indicated that 49.2% of mothers knew that the duration of EBF was the first six months. Moreover, Warille et al. (2017) found that most of the mothers knew that BF was nutritious to the baby, and 76.8%

of mothers had started BF within the first hour of delivery. Another study found that most of the study participants understand the health benefits of BF for babies and mothers, and 66.7% of mothers practiced EBF during the first six months of the infant's life, and only 28.9% continued EBF for six months (Gohal et al., 2021).

The results of this study indicated that mothers' overall knowledge about EBF was at moderate level. Some studies indicated higher knowledge about EBF and other studies reflected lower level of knowledge. Variations in level of knowledge could be related to several factors such as mothers' level of education, motivation to breastfeed her baby, and working status. It is important to improve mothers' knowledge about the benefits of EBF in order to encourage the mothers to breastfeed their babies and maintain adequate nutrition for the wellbeing of their babies.

Table (4.7): Mothers' practice of exclusive breastfeeding (n= 375)

Practice of Exclusive Breastfeeding		Correct answer	
		n	**(%)**
1.	I give my baby breast milk only during the first 6 months of age	239	63.7
2.	I give my baby formula milk only during the first 6 months of age	275	73.3
3.	I give my baby breast milk and formula milk during the first 6 months of age	197	52.5
4.	I give my baby water and breast milk during the first 6 months of age	184	49.1
5.	I give my baby juice and breast milk during the first 6 months of age	259	69.1
6.	I stop breast milk and give my baby formula milk when he is sick	265	70.7
7.	I stop breast milk and give my baby formula milk when I feel tired or exhausted	233	62.1
8	I feed my baby between 8 – 12 feedings during the first two months of age	273	72.8
9	I feed my baby between 6 - 8 feedings by the third month of age	285	76.0
10	I feed my baby for about 30 minutes each feeding	268	71.5
	Overall average percentage	**66.08**	

Table (4.7) presents the response of mothers about the practice of EBF. The results shows that 76% of mothers said that they fed their babies between 6 - 8 feedings by the third month of age, 73.3% mentioned that they gave their babies formula milk only during the first 6 months of age, and 72.8% of mothers stated that they fed their babies between 8 – 12 feedings during the first two months of age. The results also showed lower practice in some items; 49.1% said that they gave their babies water and breast milk during the first 6 months of age, 52.5% of mothers stated that they gave their babies breast milk and formula milk during the first 6 months of age.

Overall, the results showed that the average score on practice of EBF was 66.08%. This result was consistent with the results of Musmar and Qanadeelu, (2012) which showed that 69.7% of infants aged 0-6 months were exclusively breastfed and only 14.3% were exclusively formula fed.

On the other hand, higher results obtained by El Kishawi et al. (2018) which reflected that 97.8% of mothers practiced EBF. Lower results obtained by Hossain et al. (2018) who found that the prevalence of EBF was 35.9%. In addition, the results of Bbaale (2014) indicated that 46% of mothers practiced EBF, and the results of Dukuzumuremyi et al. (2020) indicated that 42% of mothers preferred to feed their babies for the first six months breast milk alone, and 55.9% of mothers practiced EBF for at least six months. Furthermore, the results of Demir et al. (2020) found that 59.8% of the mothers exclusively breastfed their babies for 6 months, and 12.3% of mothers breastfed their children for at least 12 months. Another study found that 65% of Egyptian mothers and 14% of Saudi mothers practiced EBF (Elsayed and Al-Dossary, 2016), while the results of Goweda et al. (2021) found that 25.1% of mothers were following EBF strategy, and Hendaus et al. (2018) found that the percentage of mothers who exclusively breastfed their babies in the first 6 months was 24.3%.

The result of this study reflected moderate level of practicing EBF. Despite the recommendation of the WHO for early initiation of BF within one hour of birth and EBF for the first 6 months of life, but most of the studies reflected that the compliance with these recommendations was not optimal. Low awareness about the benefits of EBF for the mother and her baby could be the cause. It is essential that improving awareness will lead to better practice, therefore, health care providers are key factors to inform the mothers about the importance of EBF during the first six months of infant’s life in order to have optimal growth of the infant and avoid morbidity and infectious disease.

4.1.4 Complementary feeding

Table (4.8): Mothers' knowledge about complementary feeding (n= 375)

Knowledge about Complementary Feeding		Correct answer	
		n	**(%)**
1	I should start complementary feeding at 3 months of age	322	85.9
2	I should start complementary feeding at 4 months of age	259	69.1
3	I should start complementary feeding at 5 months of age	253	67.5
4	I should start complementary feeding at 6 months of age	277	73.9
5	I should start giving my baby water at 6 months of age	303	80.8
6	I should start giving my baby soft foods made of cereals and crushed grains at 6 months of age	328	87.5
7	I should start giving my baby mashed fruits at 6 – 8 months of age	345	92.0
8	I should start giving my baby mashed vegetables at 6 – 8 months of age	342	91.2
9	I should start giving my baby boiled egg yolk at 7 months of age	302	80.5
10	I should start giving my baby boiled egg white at 12 months of age	308	82.1
11	I should start giving my baby whole egg 12 months of age	315	84.0
12	The egg should be boiled well to be given as complementary food at 12 months of age	301	80.3
13	I should start giving my baby roasted meat at 6 – 8 months of age	141	37.6
14	I should give my baby 2 – 3 meals per day at 6 – 8 months of age along with breastfeeding or formula milk	272	72.5
15	I should give my baby 3 - 4 meals per day at 9 months of age along with breastfeeding or formula milk	267	71.2
16	After age of 6 months, I should stop breastfeeding and give my baby formula milk and complementary feeding	268	71.5
17	At 12 months of age, I should stop all kinds of milk and give my baby complementary feeding only	252	67.2
18	I should stop the meals when my baby is sick	276	73.6
19	I should not give my baby breastfeeding and complementary feeding in the same day	265	70.7
	Overall average percentage	**75.73**	

Table (4.8) shows that 92% of mothers knew that they should start giving their babies mashed fruits at six to eight months of age, 91.2% of mothers knew that they should start giving their babies mashed vegetables at six to eight months of age, 87.5% of mothers knew that they should start giving their babies soft foods made of cereals and crushed grains at six months of age, and 85.9% of mothers knew that they should start complementary feeding at three months of age. Lower knowledge obtained in some items as 37.6% of mothers knew that they should start giving their babies roasted meat at six to eight months of age, 67.2% of mothers knew that at 12 months of age, they should stop all kinds of milk and give their babies complementary feeding only, and 67.5% of mothers said that they should start complementary feeding at five months of age. The overall average score was 75.73%, which indicated moderate knowledge about CF.

This result was inconsistent with the result of Jalambo et al. (2018) who found that 94.8% of the mothers knew that CF should be introduced to the baby after six months of age. Lower results obtained by Sethi et al. (2017) which showed that 42.0 % of mothers knew that CF should be started by six to seven months, and the knowledge regarding the consistency, amount and type of CF to be started was also very poor.

The researcher attributed the inconsistency of the results due to differences in cultural believes, which will be reflected in practices of feeding of their infants. Food and feeding usually depends on habits practiced in a society and the economic status of families, which will determine the ability of the family to provide a diversity of foods that meet the nutritional needs of the infants.

Table (4.9): Mothers' practice of complementary feeding (n= 375)

	Practice of complementary feeding	Correct answer	
		n	**(%)**
1.	I gave my baby complementary feeding at 3 months of age	337	89.9
2.	I gave my baby complementary feeding at 4 months of age	270	72.0
3.	I gave my baby complementary feeding at 5 months of age	271	72.3
4.	I gave my baby complementary feeding at 6 months of age	282	75.2
5.	I gave my baby water at 6 months of age	330	88.0
6.	I started giving my baby cerelac/ mashed cereals at 6 months of age	304	81.1
7.	I gave my baby mashed fruits at 6 – 8 months of age	335	89.3
8.	I gave my baby mashed vegetables at 6 – 8 months of age	317	84.5
9.	I gave my baby boiled egg yolk at 7 months of age	245	65.3
10.	I gave my baby boiled egg whites at 12 months of age	268	71.5
11.	I gave my baby whole boiled egg at 12 months of age	286	76.3
12.	I gave my baby roasted meat at 6 – 8 months of age	174	46.4
13.	I gave my baby 2 – 3 meals at 6 – 8 months of age	256	68.3
14	I gave my baby 3 - 4 meals at 9 months of age	245	65.3
15	I stopped the meals when my baby was sick	254	67.7
16	I stopped the meals when my baby has diarrhea	245	65.3
17	I stopped breastfeeding at 6 months of age, and substituted that with complementary feeding	302	80.5
18	At 12 months of age, I stopped all kinds of milk and give my baby complementary feeding only.	266	70.9
19	I did not give breastfeeding and complementary feeding in the same day	273	72.8
	Overall average percentage	**73.82**	

Table (4.9) shows that 89.9% of mothers said that they gave their babies CF at three months of age, 89.3% of mothers reported that they gave their babies mashed fruits at six to eight months of age, 88% of mothers stated that they gave their babies water at six months of age, and 84.5% of mothers mentioned that they gave their babies mashed vegetables at six to eight months of age. Lower practice of CF obtained in some items as

46.4% of mothers said that they gave their babies roasted meat at six to eight months of age, 65.3% of mother reported that they gave their babies boiled egg yolk at seven months of age, 65.3% of mothers stated that they gave their babies three to four meals at nine months of age, and 65.3% said that they stopped the meals when their babies have diarrhea. The overall average score was 73.82%, which indicated moderate practice of CF.

This result was inconsistent with the result of Goweda et al. (2021) which showed that 40.7% of the mothers were using CF, while the results of Kamel et al. (2020) reported that the majority of mothers initiated artificial feeding during the first month of life. Another study conducted by Ulak et al. (2020) found that 19% of children were given CF on time, 55.3% had good minimum meal frequency, 47.70% were given minimum number of food groups, 26.5% of mothers practiced good minimum acceptable diet, and 84% of mothers included processed food as a part of CF which is not a good practice. The results of Ahmed and Salih, (2019) reported that about 42% of children aged 6-23 months were not being fed the minimum number of meals per day, the prevalence of the minimum acceptable diet was about 35%, indicating that 65% of infants and children were deprived from being fed frequently throughout the day and their meals were not nutrient-dense or coming from diversified food groups.

The researcher attributes the inconsistency of the results due to differences in demographic variables and the place of the study. Age of the mother is a significant factor for practice of feeding. In the study of Goweda et al. (2021) more than half of the mothers were younger than 30 years old, and about one-fourth of mothers were working. Also, the study of Ulak et al. (2020) found that mothers lack the knowledge regarding ideal feeding, which was reflected in low practice of CF.

Table (4.10): Level of knowledge and practice of exclusive breastfeeding and complementary feeding among participants' mothers

Variable	level	n	%
Knowledge about exclusive breastfeeding	Poor (less than 60%)	69	18.4
	Moderate (60 – 79%)	147	39.2
	Good (80 - 100%)	159	42.4
Practice of exclusive breastfeeding	Poor (less than 60%)	110	29.3
	Moderate (60 – 79%)	135	36.0
	Good (80 - 100%)	130	34.7
Knowledge about complementary feeding	Poor (less than 60%)	58	15.5
	Moderate (60 – 79%)	154	41.1
	Good (80 - 100%)	163	43.5
Practice of complementary feeding	Poor (less than 60%)	84	22.4
	Moderate (60 – 79%)	153	40.8
	Good (80 - 100%)	138	36.8

Table (4.10) shows that 69 (18.4%) of mothers have poor knowledge about EBF, 147 (39.2%) have moderate knowledge, and 159 (42.4%) have good knowledge about EBF. Moreover, 110 (29.3%) of mothers have poor practice of EBF, 135 (36.0%) of mothers have moderate practice, and 130 (34.7%) have good practice of EBF. This result was consistent with the results of Alsulaimani (2021) who found that 65.3% of mothers scored over 75% of the total knowledge score, and 95% got more than half of the questions right. Another study found that by the time of discharge from hospital only 36·5 % of mothers were fully BF, 37·0 % were partially BF and 26·5 % were already fully formula feeding (Carballo et al., 2017), and the study of Manyeh et al. (2020) indicated that there was high rate of EBF.

The results also showed that 58 (15.5%) of mothers have poor knowledge about CF, 154 (41.1%) of mothers have moderate knowledge about CF, and 163 (43.5%) of mothers have good knowledge about CF. Furthermore, 84 (43.5%) of mother have poor practice of CF, 153 (40.8%) of mothers have moderate practice of CF, and 138 (36.8%) of mothers have good practice of CF. These results were inconsistent with the results of Owais et al. (2019) which indicated low knowledge about CF, and only 19% of mothers knew the WHO recommendations for CF initiation, and the results of Kamel et al. (2020) indicated that more than 85% of mothers expressed their need for additional knowledge about CF.

These results reflected the gap between knowledge and practice. Most of the studies indicated that the levels of practice of EBF and CF were lower than levels of knowledge. Low level of EBF practice is related to several factors such as work as presented in the study of Alsulaimani (2021) which showed that about 78% of the mothers were working, short birth spacing less than 2 years (Kamel et al., 2020), young age mothers, low education, and employment (Manyeh et al., 2020). It is obvious that variation in levels of practice of EBF and CF were influenced by differences in demographic characteristics of mothers.

4.2 Inferential results

4.2.1 Relationship between knowledge and practice of exclusive breastfeeding and complementary feeding

Table (4.11): Relationship between knowledge and practice of exclusive breastfeeding and complementary feeding

Variable	Correlation value	P value
Knowledge about exclusive breastfeeding and practice of exclusive breastfeeding	0.464	0.000 **
Knowledge about complementary feeding and practice of complementary feeding	0.525	0.000 **

**Significant at 0.01

Table (4.11) shows that there was statistically significant relationship between Knowledge about EBF and practice of EBF (r= 0.464, P= 0.000).

This result was consistent with the result of Alkhlot, (2018) which found that 88.4% of mothers from the case group and 82% of mothers from the control group were knowledgeable about EBF, but 73.9% of mothers from the case group and 52.8% of mothers from the control group started BF within the first hour after birth, which reflected a gap between knowledge and practice. In addition, the study of Al Ketbi et al. (2018) revealed that although breastfeeding knowledge was generally good, breastfeeding practice was still suboptimal, and the study of Mundagowa et al. (2019) reported that despite the majority of mothers (89%) had knowledge about EBF, but only 36% practiced EBF.

Also, the results showed that there was statistically significant relationship between Knowledge about CF and practice of CF (r= 0.525, P= 0.000). This result revealed that even though there was significant relationship between knowledge and practice of CF, knowledge is a prerequisite for practice, and usually good practice is correlated with high knowledge, but this is not always true.

This result was consistent with the result of Ulak et al. (2020) which indicated a gap between knowledge and practice regarding initiation and continuation of ideal CF, and the rate of CF was low, and Owais et al. (2019) reported that knowledge was not associated with timely CF initiation. In addition, the results of Agize et al. (2017) found that 51% of mothers were knowledgeable about CF but 16% practiced appropriate feeding for their children. In addition, the results of Shrestha et al. (2020) found that 64.4% of mothers knew the proper age of initiating CF but only 55.6% of mothers practiced it.

Several studies examined the relationship between knowledge and practice of EBF and CF, and these studies found a gap between knowledge and practice. The researcher attributed the gap between knowledge and practice to different factors that were extracted from the studies.

Young age mothers exhibited low practice of appropriate feeding of infants (Alsulaimani 2021; Paudel et al., 2017) which indicated that the mean age of mothers was 23.4 years, low level of education (Shrestha et al., 2020; Sulaiman et al., 2020), number of ANC visits and distance between births (Glagn and Kejela, 2019).

4.2.2 Association between knowledge and practice and sociodemographic factors

Table (4.12): Association between knowledge and practice of exclusive breastfeeding and complementary feeding and place of residency

Variable	Place of residency					χ2	P value
	Rafah n (%)	Khanyounis n (%)	Middle n (%)	Gaza n (%)	North n (%)		
Knowledge about exclusive breastfeeding							
Poor	3(15.8	9(10.6)	3(15.8)	47(24.0)	7(12.5)	22.349	0.004*
Moderate	5(26.3)	38(44.7)	7(36.8)	83(42.3)	14(25.0)		
Good	11(57.9)	38(44.7)	9(47.4)	66(33.7)	35(62.5)		
Total	19(100.0)	85(100.0)	19(100.0)	196(100.0)	56(100.0)		
Practice of exclusive breastfeeding							
Poor	4(21.1)	24(28.2)	5(26.3)	66(33.7)	11(19.6)	31.963	0.000*
Moderate	9(47.4)	35(41.2)	9(47.4)	74(37.8)	8(14.3)		
Good	6(31.6)	26(30.6)	5(26.3)	56(28.6)	37(66.1)		
Total	19(100.0)	85(100.0)	19(100.0)	196(100.0)	56(100.0)		
Knowledge about complementary feeding							
Poor	6(31.6)	11(12.9)	4(21.1)	33(16.8)	4(7.1)	11.931	0.154
Moderate	7(36.8)	33(38.8)	10(52.6)	75(38.3)	29(51.8)		
Good	6(31.6)	41(48.2)	5(26.3)	88(48.9)	23(41.1		
Total	19(100.0)	85(100.0)	19(100.0)	196(100.0)	56(100.0)		
Practice of complementary feeding							
Poor	4(21.1)	16(18.8)	5(26.3)	40(20.4)	19(33.9)	11.656	0.167
Moderate	12(63.2)	33(21.6)	9(47.4)	80(52.3)	19(33.9)		
Good	3(15.8)	36(42.4)	5(26.3)	76(38.8)	18(32.1)		
Total	19(100.0)	85(100.0)	19(100.0)	196(100.0)	56(100.0)		

Chi square test *Significant at 0.05

Table (4.12) shows that there were statistically significant association between level of knowledge about EBF (P= 0.004), and mothers from the North governorate had better knowledge about EBF compared to mothers from the other governorates. Also, there were statistically significant association between level of practice of EBF (P= 0.000), and mothers from the North governorate expressed better practice of EBF compared to mothers from the other governorates. Regarding CF, the results showed that there were statistically no significant association between level of knowledge about CF (P= 0.154), practice of CF (P= 0.167) and mothers' place of residency.

The results of Mitchodigni et al. (2017) reported that place of residency was a significant determinant factor of CF practices. In addition, the results obtained by Kamel et al. (2020) who found that rural mothers tended to introduce CF earlier than urban mothers did, minimum dietary diversity was achieved by 50.9% of urban infants aged ≥ 6 months (≥ 4 food groups), compared with 25.9% of rural infants, and minimum recommended meal frequency for age was fulfilled for 51.9% of urban and 29.6% of rural infants. In addition, the result obtained by Venugopal and Chandrashekar (2013) indicated that living in rural areas was a determinant factor that influence the decision for CF.

The researcher attributed this result to the nature of the society and culture in the north governorate as most of the people live in camps and rural areas with many families are farmers and work in agriculture in their lands. As shown in the previous studies, people who live in rural areas expressed higher rates of BF.

Table (4.13): Association between knowledge and practice of exclusive breastfeeding and complementary feeding and mothers' level of education

Variable	Level of education			χ2	P value
	Prep and less n (%)	Secondary n (%)	University n (%)		
Knowledge about exclusive breastfeeding					
Poor	15(34.9)	41(21.4)	13(9.3)	21.751	0.000*
Moderate	19(44.2)	65(33.9)	63(45.0)		
Good	9(20.9)	86(44.8)	64(45.7)		
Total	43(100.0)	192(100.0)	140(100.0)		
Practice of exclusive breastfeeding					
Poor	12(27.9)	55(28.6)	43(30.7)	15.768	0.003*
Moderate	26(60.5)	63(32.8)	46(32.9)		
Good	5(11.6)	74(38.5)	51(36.4)		
Total	43(100.0)	192(100.0)	140(100.0)		
Knowledge about complementary feeding					
Poor	9(20.9)	34(17.7)	15(10.7)	5.395	0.249
Moderate	18(41.9)	80(41.7)	56(40.0)		
Good	16(37.2)	78(40.6)	69(49.3)		
Total	43(100.0)	192(100.0)	140(100.0)		
Practice of complementary feeding					
Poor	13(30.2)	48(25.0)	23(16.4)	6.595	0.159
Moderate	19(44.2)	73(38.0)	61(43.6)		
Good	11(25.6)	71(37.0)	56(40.0)		
Total	43(100.0)	192(100.0)	140(100.0)		

Table (4.13) shows that there were statistically significant association between level of knowledge about EBF (P= 0.000), and mothers with secondary and university education expressed better knowledge about EBF compared to less educated mothers, and there were statistically significant association in level of practice of EBF (P= 0.003), and mothers with secondary and university education expressed better practice of EBF compared to less educated mothers. Regarding CF, the results showed that there were no statistically significant association between level of knowledge about CF (P= 0.249), and practice of CF (P= 0.159) and mothers' level of education.

This result was consistent with the results of Alsulaimani, (2021) which indicated that university education was associated with better knowledge about EBF, and the results of Venugopal and Chandrashekar (2013) reported that mothers' illiteracy was a significant factor that influence the decision for CF. Moreover, the results of Bandara et al. (2015) found that mothers' education has a significant impact on appropriate infant feeding, and Senarath et al. (2012) reported that low education of mothers was a determinant factor of not receiving acceptable diet, and the results of Samuel and Ibidapo (2020) reflected significant association between mothers' level of education and CF. In addition, the results of Junejo et al. (2019) found that educated mothers were more familiar with CF practices, and the results of Abul-Fadl et al. (2019) found suboptimal BF and adequate CF among mothers with higher level of education.

The researcher attributed this result to the association between level of education and knowledge. It is expected that mothers with higher level of education will have better knowledge about appropriate methods of feeding of their infants, but still there is a gap between knowledge and practice, and high knowledge will not always lead to better practice.

Table (4.14): Association between knowledge and practice of exclusive breastfeeding and complementary feeding and work status of mothers

Variable	Work status		χ2	P value
	House-wife n (%)	Working n (%)		
Knowledge about exclusive breastfeeding				
Poor	60(18.7)	9(16.7)	3.203	0.202
Moderate	120(37.4)	27(50.0)		
Good	141(43.9)	18(33.3)		
Total	321(100.0)	54(100.0)		
Practice of exclusive breastfeeding				
Poor	95(29.6)	15(27.8)	2.165	0.339
Moderate	111(34.6)	24(44.4)		
Good	115(35.8)	15(278)		
Total	321(100.0)	54(100.0)		
Knowledge about complementary feeding				
Poor	50(15.6)	8(14.8)	0.033	0.984
Moderate	132(41.1)	22(40.7)		
Good	139(43.3)	24(44.4)		
Total	321(100.0)	54(100.0)		
Practice of complementary feeding				
Poor	73(22.7)	11(20.4)	1.436	0.488
Moderate	127(39.6)	26(48.1)		
Good	121(37.7)	17(31.5)		
Total	321(100.0)	54(100.0)		

Table (4.14) shows that there were no statistically significant association between level of knowledge about EBF (P= 0.202), and level of practice of EBF (P= 0.339) and mothers' work status. The results also showed that there were no statistically significant association between level of knowledge about CF (P= 0.984), and practice of CF (P= 0.488) and mothers' work status.

This result was inconsistent with the results of Goweda et al. (2021) which indicated that work conditions were not compatible with BF. Also, the results of Samuel and Ibidapo (2020) indicated significant association between workplace and CF, and the results of Mitchodigni et al. (2017) reported that mothers' occupation was a significant determinant factor of CF practices. It is expected that working mothers will have lower level of practicing EBF and CF, because the mother spends much time away from her infant, and most of the workplaces are not suited for BF.

Table (4.15): Association between knowledge and practice of exclusive breastfeeding and complementary feeding and family income

Variable	Family income			χ2	P value
	< 1000 NIS n (%)	1000 – 1400 NIS n (%)	>1400 NIS n (%)		
Knowledge about exclusive breastfeeding					
Poor	44(21.2)	16(13.9)	9(17.3)	5.081	0.279
Moderate	72(34.6)	52(45.2)	23(44.2)		
Good	92(44.2)	47(40.9)	20(38.5)		
Total	208(100.0)	115(100.0)	52(100.0)		
Practice of exclusive breastfeeding					
Poor	61(29.3)	29(25.2)	20(38.5)	5.751	0.219
Moderate	70(33.7)	50(43.5)	15(28.8)		
Good	77(37.0)	36(31.3)	17(32.7)		
Total	208(100.0)	115(100.0)	52(100.0)		
Knowledge about complementary feeding					
Poor	41(19.7)	12(10.4)	5(9.6)	6.536	0.163
Moderate	82(39.4)	50(43.5)	22(42.3)		
Good	85(40.9)	53(46.1)	25(48.1)		
Total	208(100.0)	115(100.0)	52(100.0)		
Practice of complementary feeding					
Poor	49(23.6)	26(22.6)	9(17.3)	4.160	0.385
Moderate	76(36.5)	52(45.2)	25(48.1)		
Good	83(39.9)	37(32.2)	18(34.6)		
Total	208(100.0)	115(100.0)	52(100.0)		

Table (4.15) shows that there were no statistically significant association between level of knowledge about EBF (P= 0.279), and level of practice of EBF (P= 0.219) and family income. The results also showed that there were no statistically significant association between level of knowledge about CF (P= 0.163), and practice of CF (P= 0.385) and family income.

This result was inconsistent with the result of Seram and Punchihewa (2017) which indicated significant correlation between family income and knowledge about CF, and the results of Venugopal and Chandrashekar (2013) indicated that low socio-economic status was a significant factor that influence the decision for CF. In addition, Senarath et al. (2012) reported that lower wealth index was a determinants factor for not receiving acceptable diet. Moreover, the results of Mitchodigni et al. (2017) reported that income was a significant determinant factor of CF practices, and the results of Abul-Fadl et al. (2019) found inadequate practice of CF among poor mothers, while rich mothers showed suboptimal BF. The researcher attributed this result to the fact that most of the mothers in this study have low income and relatively from the same economic class, therefore, there were no statistically significant differences in levels of knowledge and practice of EBF and CF. It is expected that mothers from poor families are not able to provide adequate CF compared to mothers from rich families who can pay for artificial milk and other types of CF.

Table (4.16): Association between knowledge and practice of exclusive breastfeeding and complementary feeding and family size

Variable	Family size			χ2	P value
	1 – 4 members n (%)	5 - 8 members n (%)	9 members and more n (%)		
Knowledge about exclusive breastfeeding					
Poor	11(9.7)	43(20.8)	15(27.3)	11.738	0.019*
Moderate	48(32.7)	75(36.2)	24(43.6)		
Good	54(47.8)	89(43.0)	16(29.1)		
Total	113(100.0)	207(100.0)	55(100.0)		
Practice of exclusive breastfeeding					
Poor	33(29.2)	53(25.6)	24(43.6)	9.532	0.049*
Moderate	42(37.2)	73(35.3)	20(36.4)		
Good	38(33.6)	81(39.1)	11(20.0)		
Total	113(100.0)	207(100.0)	55(100.0)		
Knowledge about complementary feeding					
Poor	15(13.3)	36(17.4)	7(12.7)	5.429	0.246
Moderate	55(48.7)	80(38.6)	19(34.5)		
Good	43(38.1)	91(44.0)	29(52.7)		
Total	113(100.0)	207(100.0)	55(100.0)		
Practice of complementary feeding					
Poor	23(20.4)	53(25.6)	8(14.5)	7.369	0.118
Moderate	42(37.2)	81(39.1)	30(54.5)		
Good	48(42.5)	73(35.3)	17(30.9)		
Total	113(100.0)	207(100.0)	55(100.0)		

Table (4.16) shows that there were statistically significant association between level of knowledge about EBF (P= 0.019), and level of practice of EBF (P= 0.049), and mothers who have a family of 9 members and more expressed poor knowledge and practice of EBF compared to mothers who have less family members. Regarding CF, the results showed that there were no statistically significant association between level of knowledge about CF (P= 0.154), and practice of CF (P= 0.167) and family size.

This result was consistent with the results of Alsulaimani, (2021) which indicated that having three to six children was associated with the positive likelihood of EBF, and the results of Samuel and Ibidapo (2020) reflected significant association between family size and CF. Furthermore, the results of Mitchodigni et al. (2017) reported that household size was a significant determinant factor of CF practices.

The researcher explains this result in the context that having a big family with frequent pregnancies and short distance between births will lead to tiredness of the mother, and not give the mother adequate time for EBF. In addition, the combination of low income and the big size of the family will affect the mothers' nutritional status and her ability to breastfeed her infants.

Table (4.17): Association between knowledge and practice of exclusive breastfeeding and complementary feeding and place of delivery of mothers

Variable	Place of delivery			χ2	P value
	Gov. hospital n (%)	Private hospital n (%)	Charity hospital n (%)		
Knowledge about exclusive breastfeeding					
Poor	58(19.0)	7(14.3)	4(20.0)	1.214	0.876
Moderate	117(38.2)	21(42.9)	9(45.0)		
Good	131(42.8)	21(42.9)	7(35.0)		
Total	306(100.0)	49(100.0)	20(100.0)		
Practice of exclusive breastfeeding					
Poor	83(27.1)	19(38.8)	8(40.0)	11.517	0.021*
Moderate	105(77.8)	22(44.9)	8(40.0)		
Good	118(38.6)	8(16.3)	4(20.0)		
Total	306(100.0)	49(100.0)	20(100.0)		
Knowledge about complementary feeding					
Poor	50(16.3)	5(10.2)	3(15.0)	1.980	0.739
Moderate	123(40.2)	21(42.9)	10(50.0)		
Good	133(43.5)	23(46.9)	7(35.0)		
Total	306(100.0)	49(100.0)	20(100.0)		
Practice of complementary feeding					
Poor	78(25.5)	3(6.1)	3(15.0)	10.368	0.035*
Moderate	119(38.9)	26(53.1)	8(40.0)		
Good	109(35.6)	20(40.8)	9(45.0)		
Total	306(100.0)	49(100.0)	20(100.0)		

Table (4.17) shows that there were no statistically significant association between level of knowledge about EBF and place of delivery (P= 0.876), but there were statistically significant association between level of practice of EBF and place of delivery (P= 0.021), and mothers who delivered in governmental hospitals showed better practice of EBF compared to mothers who delivered in private and charity hospital. This result was inconsistent with the results of Alsulaimani, (2021) which indicated that birth in a private facility was associated with better knowledge about EBF. The results also showed that there were no statistically significant association between level of knowledge about CF (P= 0.739) related to place of delivery, but there were statistically significant association between level of practice of CF (P= 0.035) related to place of delivery and mothers who delivered in governmental hospitals showed poor practice of CF compared to mothers who delivered in private and charity hospital.

This result may be attributed to the fact that governmental maternity hospitals are more crowded and busier, therefore, the midwives and obstetricians do not have adequate time for health education about appropriate feeding methods, while private hospitals usually are less crowded, less workload, and health education is an important task that the health care providers should do as part of the quality of health services provided in private hospitals.

Table (4.18): Association between knowledge and practice of exclusive breastfeeding and complementary feeding and number of pregnancies

Variable	Number of pregnancies			$\chi2$	P value
	1 - 3 n (%)	4 - 6 n (%)	≥ 7 n (%)		
Knowledge about exclusive breastfeeding					
Poor	18(11.5)	30(20.1)	21(30.0)	17.697	0.001*
Moderate	61(39.1)	54(36.2)	32(45.7)		
Good	77(49.4)	65(43.6)	17(24.3)		
Total	156(100.0)	149(100.0)	70(100.0)		
Practice of exclusive breastfeeding					
Poor	45(28.8)	36(24.2)	29(41.4)	9.445	0.051
Moderate	51(32.7)	59(39.6)	25(35.7)		
Good	60(38.5)	54(36.2)	16(22.9)		
Total	156(100.0)	149(100.0)	70(100.0)		
Knowledge about complementary feeding					
Poor	22(14.1)	23(15.4)	13(18.6)	4.119	0.390
Moderate	73(46.8)	57(38.3)	24(34.3)		
Good	61(39.1)	69(46.3)	33(47.1)		
Total	156(100.0)	149(100.0)	70(100.0)		
Practice of complementary feeding					
Poor	36(23.1)	33(22.1)	15(21.4)	3.257	0.516
Moderate	57(36.5)	62(41.6)	34(48.6)		
Good	63(40.4)	54(36.2)	21(30.0)		
Total	156(100.0)	149(100.0)	70(100.0)		

Table (4.18) shows that there were statistically significant association between level of knowledge about EBF (P= 0.001), and mothers who had 1 – 3 pregnancies expressed better knowledge about EBF compared to mothers with higher number of pregnancies, but there were statistically no significant association between level of practice of EBF (P= 0.051). Regarding CF, the results showed that there were statistically no significant association between level of knowledge about CF (P= 0.390), and practice of CF (P= 0.516) and number of pregnancies.

This result was inconsistent with the results of Junejo et al. (2019) who found that multigravida mothers have more knowledge about CF practices compared to primigravida mothers. The researcher attributed this inconsistency as multigravida mothers gained more experience with methods and types of CF as a result of feeding of her previous children, and that will increase their knowledge about feeding of their infants.

Table (4.19): Association between knowledge and practice of exclusive breastfeeding and complementary feeding and number of deliveries

Variable	Number of deliveries			χ2	P value
	1 - 3 n (%)	4 - 6 n (%)	≥ 7 n (%)		
Knowledge about exclusive breastfeeding					
Poor	21(12.2)	28(20.1)	20(31.3)	16.962	0.002*
Moderate	65(37.8)	54(38.8)	28(43.8)		
Good	86(50.0)	57(41.0)	16(25.0)		
Total	172(100.0)	139(100.0)	64(100.0)		
Practice of exclusive breastfeeding					
Poor	48(27.9)	34(24.5)	28(43.8)	10.507	0.033*
Moderate	61(35.5)	51(36.7)	23(35.9)		
Good	63(36.6)	54(38.8)	13(20.3)		
Total	172(100.0)	139(100.0)	64(100.0)		
Knowledge about complementary feeding					
Poor	23(13.4)	22(15.8)	13(20.3)	4.275	0.370
Moderate	79(45.9)	54(38.8)	21(32.8)		
Good	70(40.7)	63(45.3)	30(46.9)		
Total	172(100.0)	139(100.0)	64(100.0)		
Practice of complementary feeding					
Poor	37(21.5)	34(24.5)	13(20.3)	2.470	0.650
Moderate	67(39.0)	55(39.6)	31(48.4)		
Good	68(39.5)	50(30.6)	20(31.3)		
Total	172(100.0)	139(100.0)	64(100.0)		

Table (4.19) shows that there were statistically significant association between level of knowledge about EBF (P= 0.002), and level of practice of EBF (P= 0.033), and mothers with seven deliveries and more expressed poor knowledge and practice of EBF compared to mothers with less number of deliveries. Regarding CF, the results showed that there were no statistically significant association between level of knowledge about CF (P= 0.370), and practice of CF (P= 0.650) and number of deliveries.

This result was consistent with the result of Venugopal and Chandrashekar (2013) which indicated that there was no statistically significant association between number of deliveries and CF. It is expected that by increasing the number of deliveries, the mother will gain experience in proper feeding of her infants, along with acquiring information from health care providers, and that will increase mothers' knowledge about feeding methods and improve their practice of feeding of their infants.

Table (4.20): Association between knowledge and practice of exclusive breastfeeding and complementary feeding and number of live children

Variable	Number of live children			$\chi 2$	P value
	1 - 3 n (%)	4 - 6 n (%)	≥ 7 n (%)		
Knowledge about exclusive breastfeeding					
Poor	25(14.0)	29(20.4)	15(27.3)	10.033	0.040*
Moderate	65(36.5)	58(40.8)	24(43.6)		
Good	88(49.4)	55(38.7)	16(29.1)		
Total	178(100.0)	142(100.0)	55(100.0)		
Practice of exclusive breastfeeding					
Poor	49(27.5)	37(26.1)	24(43.6)	8.607	0.072
Moderate	64(36.0)	51(37.8)	20(36.4)		
Good	65(36.5)	54(38.0)	11(20.0)		
Total	178(100.0)	142(100.0)	55(100.0)		
Knowledge about complementary feeding					
Poor	26(14.6)	24(16.9)	8(14.5)	3.438	0.487
Moderate	80(44.9)	56(39.4)	18(32.7)		
Good	72(40.4)	62(43.7)	29(52.7)		
Total	178(100.0)	142(100.0)	55(100.0)		
Practice of complementary feeding					
Poor	38(21.3)	38(26.8)	8(14.5)	6.728	0.151
Moderate	70(39.3)	53(37.3)	30(54.5)		
Good	70(39.3)	51(35.9)	17(30.9)		
Total	178(100.0)	142(100.0)	55(100.0)		

Table (4.20) shows that there were statistically significant association between level of knowledge about EBF and number of live children (P= 0.040), and mothers with 7 live children and more expressed poor knowledge about EBF compared to mothers with a smaller number of live children, but there were no statistical significant association between level of practice of EBF and number of live children (P= 0.072). Regarding CF, the results showed that there were no statistically significant association between level of knowledge about CF (P= 0.487), and practice of CF (P= 0.151) and number of live children of mothers. This result reflected statistically significant association between knowledge and practice of EBF, but no significant association with CF. This result may be attributed to having high number of children will make the mother busy in caring for her children in addition to the other duties at home, and that will not give her adequate time to counsel her health care provider about feeding methods. In addition, those mothers may rely on their experience with her previous children, and do not feel that they need new information about feeding of infants.

Table (4.21): Association between knowledge and practice of exclusive breastfeeding and complementary feeding and number of ANC visits

Variable	Number of ANC visits			$\chi2$	P value
	≤ 3 n (%)	4 - 7 n (%)	≥ 8 n (%)		
Knowledge about exclusive breastfeeding					
Poor	7(8.6)	39(21.8)	23(20.0)	7.787	0.100
Moderate	37(45.7)	70(39.1)	40(34.8)		
Good	37(45.7)	70(39.1)	52(45.2)		
Total	81(100.0)	179(100.0)	115(100.0)		
Practice of exclusive breastfeeding					
Poor	21(25.9)	60(33.5)	29(25.2)	4.959	0.292
Moderate	35(43.2)	56(31.3)	44(38.3)		
Good	25(30.9)	63(35.2)	42(36.5)		
Total	81(100.0)	179(100.0)	115(100.0)		
Knowledge about complementary feeding					
Poor	11(13.6)	30(16.8)	17(14.8)	3.220	0.522
Moderate	29(35.8)	79(44.1)	46(40.0)		
Good	41(50.6)	70(39.1)	52(45.2)		
Total	81(100.0)	179(100.0)	115(100.0)		
Practice of complementary feeding					
Poor	16(19.8)	42(23.5)	26(22.6)	7.198	0.126
Moderate	31(38.3)	65(36.3)	57(49.6)		
Good	34(42.0)	72(40.2)	32(27.8)		
Total	81(100.0)	179(100.0)	115(100.0)		

Table (4.21) shows that there were no statistically significant association between level of knowledge about EBF (P= 0.100) and practice of EBF (P= 0.292) and number of ANC visits. Regarding CF, the results showed that there were statistically no significant association between level of knowledge about CF (P= 0.522), and practice of CF (P= 0.126) and number of ANC visits.

These results reflected no statistically significant association between number of ANC visits and knowledge and practice of EBF, and knowledge and practice of CF. These results were inconsistent with the results of Samuel and Ibidapo (2020) which reflected statistically significant association between ANC visits and CF. The researcher believes that the visit to the ANC clinic is the best time for health education and counselling about appropriate feeding patterns. The mothers can ask questions and receive information from her health care provider during ANC visits, and by increase the number of visits, the mother can receive more information about methods and types of feeding, and that would enhance their practice of appropriate feeding of their infants.

Table (4.22): Association between knowledge and practice of exclusive breastfeeding and complementary feeding and space between pregnancies

Variable	Space between pregnancies			$\chi2$	P value
	≤ 2 years n (%)	3 – 4 years n (%)	≥ 5 years n (%)		
Knowledge about exclusive breastfeeding					
Poor	45(17.7)	12(16.4)	12(25.0)	7.058	0.133
Moderate	92(36.2)	37(50.7)	18(37.5)		
Good	117(46.1)	24(32.9)	18(37.5)		
Total	254(100.0)	73(100.0)	48(100.0)		
Practice of exclusive breastfeeding					
Poor	73(28.7)	16(21.9)	21(43.8)	13.037	0.011*
Moderate	83(32.7)	36(49.3)	16(33.3)		
Good	98(38.6)	21(28.8)	11(22.9)		
Total	254(100.0)	73(100.0)	48(100.0)		
Knowledge about complementary feeding					
Poor	46(18.1)	8(11.0)	4(8.3)	10.565	0.032*
Moderate	106(41.7)	34(46.6)	14(29.2)		
Good	102(40.2)	31(42.5)	30(62.5)		
Total	254(100.0)	73(100.0)	48(100.0)		
Practice of complementary feeding					
Poor	68(26.8)	12(16.4)	4(8.3)	10.560	0.032*
Moderate	96(37.8)	35(47.9)	22(45.8)		
Good	90(35.4)	26(35.6)	22(45.8)		
Total	254(100.0)	73(100.0)	48(100.0)		

Table (4.22) shows that there were no statistically significant association between level of knowledge about EBF and space between pregnancies (P= 0.133). There were statistically significant association between practice of EBF and space between pregnancies (P= 0.011) and mothers with 5-years and more spacing between pregnancies expressed better practice of EBF. Regarding CF, the results showed that there were statistically significant association between level of knowledge about CF (P= 0.032), and practice of CF (P= 0.032) and space between pregnancies, and mothers with 5-years and more spacing between pregnancies expressed better knowledge and practice of CF. This result was consistent with the results of Alsulaimani, (2021) which indicated that inter-pregnancy interval was associated with the positive likelihood of EBF. The researcher explains this result in the context that having longer spacing between births will enable the mother to provide adequate and appropriate CF to her infant. It is known that CF includes some formulas such as cerelac and other flavored foods that the mother have to buy, therefore, having short space between births and high number of children is costly and many of the poor families will not be able to pay for such CF, while having longer spacing between births with a smaller number of children would be easier for the family to afford appropriate CF for their infant.

Table (4.23): Association between knowledge and practice of exclusive breastfeeding and complementary feeding and gender of the infant

Variable	Gender of the infant		χ2	P value
	Male n (%)	Female n (%)		
Knowledge about exclusive breastfeeding				
Poor	32(17.7)	37(19.1)	1.220	0.543
Moderate	67(37.0)	80(41.2)		
Good	82(45.3)	77(39.7)		
Total	181(100.0)	194(100.0)		
Practice of exclusive breastfeeding				
Poor	63(34.8)	47(24.2)	6.079	0.048*
Moderate	56(30.9)	79(40.7)		
Good	62(34.3)	68(35.1)		
Total	181(100.0)	194(100.0)		
Knowledge about complementary feeding				
Poor	31(17.1)	27(13.9)	1.495	0.473
Moderate	69(38.1)	85(43.8)		
Good	81(44.8)	82(42.3)		
Total	181(100.0)	194(100.0)		
Practice of complementary feeding				
Poor	38(21.0)	46(23.7)	0.400	0.819
Moderate	75(41.4)	78(40.2)		
Good	68(37.6)	70(36.1)		
Total	181(100.0)	194(100.0)		

Table (4.23) shows that there were no statistically significant association between level of knowledge about EBF and gender of infant (P= 0.543), but there were statistically significant association between level of practice of EBF and gender of infant (P= 0.048) and mothers of male infants expressed poor practice of EBF compared to mothers of female infants. Regarding CF, the results showed that there were no statistically significant association between level of knowledge about CF (P= 0.473), and practice of CF (P= 0.819) and gender of infants. This result was inconsistent with the results of Venugopal and Chandrashekar (2013) which showed that infant's gender was a significant factor that influence the decision for feeding, as mothers of male infants tend to wean late. This result may be attributed to the preference of some families for males rather than females, therefore, mothers who have male infant will breastfeed her baby longer period as part of more concern and attention to the baby. The result of the current study did not show an association between gender and feeding, and this result is logic, because it is normal for the mother to provide equal method of feeding for male or female infant.

Table (4.24): Association between method of feeding and age of infant

Variable	Age of child			$\chi 2$	P value
	7 – 7.9 months n (%)	8 – 9.9 months n (%)	10 – 12 months n (%)		
Breast milk only	15(17.4)	35(20.2)	18(15.5)	7.793	0.649
Artificial milk only	3(3.5)	3(1.7)	2(1.7)		
Breast milk and artificial milk	18(20.9)	20(11.6)	14(12.1)		
Breast milk and complementary food	26(30.2)	57(32.9)	45(38.8)		
Artificial milk and complementary food	16(18.6)	38(22.0)	32(19.8)		
Regular food only	8(9.3)	20(11.6)	14(12.1)		
Total	86(100.0)	173(100.0)	116(100.0)		

Table (4.24) shows that there was no significant association between method of feeding and age of the child (P= 0.649). The results showed that 17.4% of infants aged 7 – 7.9 months, 20.2% of infants aged 8 – 9.9 months, and 15.5% of infants aged 10 – 12 months are fed by breast milk only. Also, 3.5% of infants aged 7 – 7.9 months, 1.7% of infants aged 8 – 9.9 months, and 1.7% of infants aged 10 – 12 months are fed by artificial milk only. In addition, 20.9% of infants aged 7 – 7.9 months, 11.6% of infants aged 8 – 9.9 months, and 12.1% of infants aged 10 – 12 months are fed by breast milk and artificial milk. Moreover, 30.2% of infants aged 7 – 7.9 months, 32.9% of infants aged 8 – 9.9 months, and 38.8% of infants aged 10 – 12 months are fed by breast milk and complementary food. Furthermore, 18.6% of infants aged 7 – 7.9 months, 22% of infants aged 8 – 9.9 months, and 19.8% of infants aged 10 – 12 months are fed by artificial milk and complementary food. Finally, 9.3% of infants aged 7 – 7.9 months, 11.6% of infants aged 8 – 9.9 months, and 12.1% of infants aged 10 – 12 months are fed by regular food only.

The results of Ogunlesi, (2010) found that the rate of EBF was 33.3% for children aged 0-3 months, 22.2% for children aged 4-6 months and 19.4% for children aged 7-24 months. Furthermore, the results of Alsulaimani, (2021) indicated that age of the baby was associated with better knowledge about EBF.

The results of Venugopal and Chandrashekar, (2013) showed that the mean age of CF was 8.24 months, and 23% of mothers started CF at 6 months of age, while Owais et al. (2019) found that CF initiation was early for 7% of infants, on time for 49%, and late for 44% of infants. The results of Dabbour, (2019) indicated that 45.3% of mothers introduced CF at less than 6 months old, and the results of Ahmed and Salih, (2019) showed that 83% of infants received CF under six months of age, while about 13% of infants were optimally introduced to CF.

This result reflected discrepancy in the age of introducing CF, some mothers introduced CF within normal time after 6 months of infants' age, while other mothers introduced CF early before 6 months, and other mothers introduced CF late. Variations in time of introducing CF may be attributed to factors related to the mothers such as inadequate knowledge about time of introducing CF or lack of knowledge about the importance of CF for proper growth of the infant. Other factors may be attributed to the infants such as illness, and their ability to tolerate different types of food.

Table (4.25): association between knowledge and practice of exclusive breastfeeding and complementary feeding and gestational age

Variable	Gestational age		$\chi 2$	P value
	< 37 weeks n (%)	≥ 37 weeks n (%)		
Knowledge about exclusive breastfeeding				
Poor	7(14.3)	62(19.0)	4.544	0.103
Moderate	26(53.1)	121(37.1)		
Good	16(32.7)	143(43.9)		
Total	49(100.0)	326(100.0)		
Practice of exclusive breastfeeding				
Poor	15(30.6)	95(29.1)	2.955	0.228
Moderate	22(44.9)	113(34.7)		
Good	12(24.5)	118(36.2)		
Total	49(100.0)	326(100.0)		
Knowledge about complementary feeding				
Poor	8(16.3)	50(15.3)	0.162	0.922
Moderate	21(42.9)	133(40.8)		
Good	20(40.8)	143(43.9)		
Total	49(100.0)	326(100.0)		
Practice of complementary feeding				
Poor	11(22.4)	73(22.4)	0.475	0.788
Moderate	18(36.7)	135(41.4)		
Good	20(40.8)	118(36.2)		
Total	49(100.0)	326(100.0)		

Table (4.25) shows that there were no statistically significant association between level of knowledge about EBF (P= 0.103) and practice of EBF (P= 0.228) and gestational age of infants. Regarding CF, the results showed that there were no statistically significant association between level of knowledge about CF (P= 0.922), and practice of CF (P= 0.788) and gestational age of infants. The results of Therese (2017) showed high knowledge about EBF (92.6%), while there was lower level of practice as 43.6% of the mothers said that they used cow milk for feeding of their infants, and 46.8% used formula.

The researcher may attribute this result to mothers' concern about feeding of their infants regardless of their gestational age. The mothers will seek information about proper feeding of their infants. It is expected that mothers of preterm infants will have more concern to gain knowledge about patterns of feeding to enhance the growth of their infants. The results of this study did not show statistically significant differences in knowledge and practice of EBF and CF between mothers regardless of their gestational age, and that would be logic as infants from different ages need appropriate feeding to maintain normal growth and development.

Table (4.26): Association between knowledge and practice of exclusive breastfeeding and complementary feeding and birth weight

Variable	Birth weight			χ2	P value
	< 2500 g n (%)	2500 – 4000 g n (%)	≥ 4000 g n (%)		
Knowledge about exclusive breastfeeding					
Poor	2(13.3)	62(89.9)	5(7.2)	3.759	0.440
Moderate	8(53.3)	135(39.1)	4(26.7)		
Good	5(33.3)	148(42.9)	6(40.0)		
Total	15(100.0)	345(100.0)	15(100.0)		
Practice of exclusive breastfeeding					
Poor	4(26.7)	101(29.3)	5(33.3)	0.935	0.920
Moderate	7(46.7)	123(35.7)	5(33.3)		
Good	4(26.7)	121(35.1)	5(33.3)		
Total	15(100.0)	345(100.0)	15(100.0)		
Knowledge about complementary feeding					
Poor	2(13.3)	54(15.7)	2(13.3)	0.182	0.996
Moderate	6(40.0)	142(41.2)	6(40.0)		
Good	7(46.7)	149(43.2)	7(46.7)		
Total	15(100.0)	345(100.0)	15(100.0)		
Practice of complementary feeding					
Poor	2(13.3)	78(22.6)	4(26.7)	1.387	0.846
Moderate	8(53.3)	139(40.3)	6(40.0)		
Good	5(33.3)	128(37.1)	5(33.3)		
Total	15(100.0)	345(100.0)	15(100.0)		

Table (4.26) shows that there were no statistically significant association between level of knowledge about EBF (P= 0.440) and practice of EBF (P= 0.920) and BW of infants. Regarding CF, the results showed that there were no statistically significant association between level of knowledge about CF (P= 0.996), and practice of CF (P= 0.846) and BW of infants. This result was inconsistent with the results of Mundagowa et al. (2019) which indicated that LBW was a significant factor associated with low practice of EBF. The researcher attributed this result to the fact that mothers are interested in feeding their babies either normal weight or LBW, because the infant is in need for proper and adequate feeding. In addition, the nature of the mother is characterized by kind and concern about her infant, therefore, infants BW would not be a barrier that prevent the mothers from breastfeeding their infants and providing CF to enhance the growth of their infants.

Table (4.27): Association between knowledge and practice of exclusive breastfeeding and complementary feeding and mode of delivery

Variable	Mode of delivery		χ2	P value
	NVD n (%)	CS n (%)		
Knowledge about exclusive breastfeeding				
Poor	47(17.0)	22(22.4)	4.305	0.116
Moderate	104(37.5)	43(43.9)		
Good	126(45.5)	33(33.7)		
Total	277(100.0)	98(100.0)		
Practice of exclusive breastfeeding				
Poor	80(28.9)	30(30.6)	5.570	0.062
Moderate	92(33.2)	43(43.9)		
Good	105(37.9)	25(25.5)		
Total	277(100.0)	98(100.0)		
Knowledge about complementary feeding				
Poor	40(14.4)	18(18.4)	0.938	0.626
Moderate	114(41.2)	40(40.8)		
Good	123(44.4)	40(40.8)		
Total	277(100.0)	98(100.0)		
Practice of complementary feeding				
Poor	62(22.4)	22(22.4)	1.815	0.404
Moderate	108(39.0)	45(45.9)		
Good	107(38.6)	31(31.6)		
Total	277(100.0)	98(100.0)		

NVD= Normal vaginal delivery CS= Cesarean section

Table (4.27) shows that there were no statistical significant association between level of knowledge about EBF (P= 0.116), practice of EBF (P= 0.062) and mode of delivery. Regarding CF, the results showed that there were no statistical significant association between level of knowledge about CF (P= 0.626), and practice of CF (P= 0.404) and mode of delivery. This result was inconsistent with the results of Erbaydar and Erbaydar (2020) which showed that women who underwent CS had a higher risk of late initiation of BF and non-exclusive breastfeeding. The researcher attributed the inconsistency in results because mothers who delivered by CS will have pain and discomfort at the surgical site, therefore, they will delay BF until they are comfortable and able to breastfed her baby without pain.

Chapter Five

Conclusion and Recommendations

5.1 Conclusion

This study assessed the level of knowledge and practice of EBF and CF among mothers in GS.

The results indicated that the overall average knowledge about EBF was moderate (75.94%), and the overall average knowledge about CF was moderate (75.73%). The overall average practice of EBF was 66.08%, and the practice of CF was at moderate level (73.82%).

There was statistically significant relationship between knowledge and practice of EBF, and knowledge and practice of CF.

Mothers from the North governorate showed significant higher knowledge and practice of EBF compared to mothers from the other governorates, mothers with secondary and university education expressed higher knowledge about EBF, mothers with nine children and more expressed lower knowledge and practice of EBF.

Mothers who had one to three pregnancies expressed higher knowledge about EBF, mothers with seven deliveries and more expressed lower knowledge and practice of EBF, mothers with seven live children and more expressed lower knowledge and practice of EBF, mothers with higher number of ANC visits showed higher practice of EBF, and mothers who delivered by NVD showed higher practice of EBF.

The results also indicated that mothers who delivered at governmental hospitals showed lower practice of CF, and mothers with 5-years and more spacing between pregnancies expressed higher level of knowledge and practice of CF.

5.2 Recommendations

Based on the study results, the researcher recommends the following:

For health care providers

- Adoption of a national policy for exclusive breastfeeding, and the time of introducing complementary feeding.
- Emphasize the need for more efforts in health education about the early initiation of exclusive breastfeeding to bridge the gap between knowledge and practice.
- Use pamphlets and brochures to teach the mothers about appropriate time of initiation, and components of complementary feeding.
- Instruct the mothers not to stop breastfeeding when the infant is sick.

For the mothers of infants

- To ask for health education activities about breastfeeding during their visits to the antenatal care clinic.
- Avoid giving the baby water or artificial milk for the infant before the age of six months.
- To start complementary feeding after six months of age.

5.3 Suggestions for further studies

- To carry out a study to evaluate the adequacy of health education provided to the mothers during the antenatal care visits.
- To conduct a study aiming to identify contributing factors and barriers to exclusive breastfeeding.

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Annexes

Annex (1): Consent Form

بسم الله الرحمن الرحيم

السيدة الفاضلة:

بين أيديكم استبانة خاصة برسالة الماجستير التي أقوم بإجرائها وهي تهدف إلى التعرف على مستوى المعرفة والممارسة للرضاعة الطبيعية والتغذية التكميلية للأطفال لدى الأمهات في قطاع غزة.

يرجى الإجابة على جميع فقرات الاستبانة بشكل أمين، حيث أن إجابتك تعبر عن رأيك الشخصي، مع العلم أن المعلومات التي سيتم جمعها سوف تستخدم لأغراض البحث العلمي فقط، ولا داعي لكتابة اسمك الشخصي، كما أن المشاركة في هذه الدراسة طوعية.

أشكركم على حسن تعاونكم ،،،

الموافقة على المشاركة في البحث: ....

الباحث

إبراهيم ابو صالح

Annex (2): Knowledge and Practice of Exclusive Breastfeeding and Complementary Feeding Questionnaire (Arab version)

المحور الأول: البيانات الشخصية للأم:

1. المحافظة	□ رفح □ خانيونس □ الوسطى □ غزة □ الشمال
2. المستوى التعليمي للأم	□ إعدادية فأقل □ ثانوية □ جامعي
3. العمل:	□ ربة بيت □ تعمل / موظفة
4. الدخل الشهري للأسرة:	.... شيكل
5. العدد الكلي لأفراد الأسرة:......................	
6. مكان ولادة الطفل الحالي:	□ مستشفى حكومي □ مستشفى/عيادة خاصة □ مستشفى خيري/ أهلي □ غير ذلك ....
7. عدد مرات الحمل:	....
8. عدد مرات الولادة:	....
9. عدد الأطفال الأحياء:	....
10. عدد الزيارات لعيادة رعاية الحوامل خلال فترة الحمل بالطفل الحالي:	
11. الفترة الزمنية بين ولادة الطفل السابق والطفل الحالي:	

المحور الثاني: البيانات الشخصية للطفل:

1. الجنس:	□ ذكر □ أنثى
2. تاريخ ميلاد الطفل:	/ /
3. العمر الجنيني للطفل عند الولادة (مدة الحمل):	.... أسبوع
4. وزن الطفل عند الولادة:	.... جرام
5. طريقة الولادة:	□ طبيعية □ قيصرية
6. هل تلقيت معلومات حول الرضاعة الطبيعية الخالصة خلال زيارتك لعيادة رعاية الحوامل؟ □ نعم □ لا	
7. هل تلقيت معلومات بخصوص الغذاء التكميلي خلال زيارتك لعيادة رعاية الحوامل؟ □ نعم □ لا	
8. هل أخبرك الأطباء أو القابلات والممرضات عن بدء الرضاعة الطبيعية لطفلك خلال الساعة الأولى من الولادة؟ □ نعم □ لا	
9. هل أدخل الطفل لقسم الحضانة بعد الولادة؟ □ نعم □ لا	
10. إذا كانت الإجابة على السؤال السابق (نعم)، كم كانت فترة مكوث الطفل في قسم الحضانة؟ .... يوماً	

11. هل تكرر مرض الطفل أثناء فترة الرضاعة؟ □ نعم □ لا
12. إذا كانت الإجابة على السؤال السابق (نعم)، كم كان عدد مرات المرض؟ ....
13. بعد ولادة الطفل الحالي، متى بدأت إرضاعه رضاعة طبيعية؟ ....
14. إلى أي عمر أرضعتِ الطفل الحالي رضاعة طبيعية خالصة؟ ....
15.هل أعطيتِ طفلك الحالي حليب الأطفال؟ □ نعم □ لا
16. إذا كانت الإجابة نعم، في أي عمر؟ ....
17. هل بدأت بإعطاء طفلك الغذاء التكميلي بجانب الرضاعة الطبيعية؟ □ نعم □ لا
18. إذا كانت الإجابة نعم، كم كان عمر الطفل عندما بدأت بإعطاء الغذاء التكميلي؟ ....

19.طريقة التغذية الحالية للطفل:	□ حليب الأم فقط □ حليب أطفال فقط □ حليب الأم + حليب أطفال □ حليب الأم + غذاء تكميلي □ حليب أطفال + غذاء تكميلي □ غذاء عادي فقط

يرجى وضع علامة (√) أمام كل سؤال من الأسئلة التالية:

المحور الثالث: الرضاعة الطبيعية (خلال الستة شهور الأولى من عمر الطفل)

	المعرفة بالمعلومات حول الرضاعة الطبيعية الخالصة	نعم	لا
1	يجب إعطاء الطفل حليب الأم فقط خلال الستة شهور الأوَلْ من عمره		
2	حليب الأم صحي أكثر للطفل من حليب الأطفال		
3	حليب الأم يهضم بسهولة مقارنة بحليب الأطفال		
4	حليب الأم وحليب الأطفال لهما نفس الفائدة للطفل		
5	حليب الأطفال أكثر فائدة للطفل من حليب الأم.		
6	حليب الأم يسبب الإسهال للطفل.		
7	حليب الأم يؤدي لحدوث حساسية لدى الطفل.		
8	حليب الأم يحتوي على الأجسام المضادة اللازمة لتقوية جهاز المناعة لدى الطفل.		
9	إعطاء الطفل الماء بالإضافة لحليب الأم خلال الستة شهور الأوَلْ من عمره ضروري لصحة الطفل.		
10	إعطاء الطفل العصائر بالإضافة لحليب الأم خلال الشهور الستة الأوَلْ من عمره ضروري لنمو الطفل.		
11	إعطاء الطفل حليب الأطفال بالإضافة لحليب الأم خلال الشهور الستة الأوَلْ من عمره ضروري لزيادة وزن الطفل.		
12	يحتاج الطفل منذ الولادة حتى عمر شهرين من 8 – 12 رضعة في اليوم (رضعة كل 2 – 3 ساعات)		

13	مع الشهر الثالث يحتاج الطفل من 6 – 8 رضعات في اليوم (رضعة كل 3 – 4 ساعات)		
14	متوسط المدة الزمنية لكل رضعة حوالي 30 دقيقة		
	ممارسة الرضاعة الطبيعية الخالصة	**نعم**	**لا**
1	قمت بإرضاع طفلي رضاعة طبيعية فقط خلال الشهور الستة الأوَلْ من عمره.		
2	قمت بإرضاع طفلي حليب الأطفال فقط خلال الشهور الستة الأوَلْ من عمره.		
3	قمت بإرضاع طفلي رضاعة طبيعية وحليب الأطفال خلال الشهور الستة الأوَلْ من عمره.		
4	قمت بإعطاء طفلي الماء بالإضافة للرضاعة الطبيعية خلال الشهور الستة الأوَلْ من عمره.		
5	قمت بإعطاء طفلي العصائر بالإضافة للرضاعة الطبيعية خلال الشهور الستة الأوَلْ من عمره.		
6	أستبدل الرضاعة الطبيعية بحليب الأطفال في حالة مرض الطفل.		
7	أستبدل الرضاعة الطبيعية بحليب الأطفال في حالة شعوري بالتعب والإرهاق أحياناً.		
8	أرضعت طفلي من 8 – 12 رضعة في اليوم خلال أول شهرين من عمره		
9	أرضعت طفلي من 6 – 8 رضعات في اليوم مع بداية الشهر الثالث من عمره		
10	أرضع طفلي لمدة قد تصل إلى 30 دقيقة في كل رضعة		

المحور الرابع: الغذاء التكميلي (من 6 – 12 شهر من عمر الطفل)

	المعرفة بالمعلومات حول الغذاء التكميلي	**نعم**	**لا**
1	يجب البدء بالغذاء التكميلي عند بلوغ الطفل 3 شهور		
2	يجب البدء بالغذاء التكميلي عند بلوغ الطفل 4 شهور		
3	يجب البدء بالغذاء التكميلي عند بلوغ الطفل 5 شهور		
4	يجب البدء بالغذاء التكميلي عند بلوغ الطفل 6 شهور		
5	يجب البدء بإعطاء الطفل الماء عند بلوغ سن 6 شهور.		
6	يجب البدء بإعطاء السيريلاك أو الحبوب المطحونة عند بلوغ الطفل 6 شهور.		
7	يجب البدء بإعطاء الطفل الفاكهة المطحونة عند بلوغ سن 6 – 8 شهور.		
8	يجب البدء بإعطاء الطفل الخضروات المطحونة عند بلوغ سن 6 – 8 شهور.		
9	يجب البدء بإعطاء الطفل صفار البيض المسلوق جيداً عند بلوغ سن 7 شهور.		
10	يجب البدء بإعطاء الطفل بياض البيض المسلوق جيداًعند بلوغ سن 12 شهر.		
11	يجب البدء بإعطاء الطفل بيضة كاملة عند بلوغ سن 12 شهر.		
12	يجب أن تكون البيضة مسلوقة بشكل جيد لتعطى للطفل كغذاء تكميلي عند عمر 12 شهر		
13	يجب البدء بإعطاء الطفل اللحوم المفرومة عند بلوغ سن 6 – 8 شهور.		
14	عند بلوغ الطفل 6 – 8 شهور يتوجب إعطاؤه من 2 – 3 وجبات غذائية بالإضافة إلى الرضاعة الطبيعية أو حليب الأطفال		
15	عند بلوغ الطفل 9 شهور يتوجب إعطاؤه 3 – 4 وجبات غذائية بجوار الرضاعة الطبيعية أو حليب الأطفال		

16	بعد بلوغ الطفل 6 شهور، يجب وقف الرضاعة الطبيعية واستبدالها بحليب الأطفال بالإضافة إلى الغذاء التكميلي.		
17	عند بلوغ الطفل 12 شهر، يجب إيقاف كل أنواع الحليب والاكتفاء بالغذاء التكميلي فقط.		
18	يجب إيقاف الوجبات الغذائية في حالة مرض الطفل.		
19	يجب عدم إعطاء الرضاعة الطبيعية والغذاء التكميلي في نفس اليوم		
	ممارسة التغذية التكميلية	**نعم**	**لا**
1	بدأت بإعطاء طفلي الغذاء التكميلي عند بلوغه سن 3 شهور.		
2	بدأت بإعطاء طفلي الغذاء التكميلي عند بلوغه سن 4 شهور.		
3	بدأت بإعطاء طفلي الغذاء التكميلي عند بلوغه سن 5 شهور.		
4	بدأت بإعطاء طفلي الغذاء التكميلي عند بلوغه سن 6 شهور.		
5	بدأت بإعطاء طفلي الماء عند بلوغه سن 6 شهور.		
6	بدأت بإعطاء طفلي الغذاء اللين (مثل السيريلاك) والحبوب المطحونة عند بلوغه سن 6 شهور.		
7	بدأت بإعطاء طفلي الفاكهة المطحونة عند بلوغه سن 6 – 8 شهور.		
8	بدأت بإعطاء طفلي الخضروات المطحونة عند بلوغه سن 6 – 8 شهور.		
9	بدأت بإعطاء طفلي صفار البيض المسلوق جيداً عند بلوغه سن 7 شهور.		
10	بدأت بإعطاء طفلي بياض البيض المسلوق جيداً عند بلوغه سن 12 شهر		
11	بدأت بإعطاء طفلي بيضة مسلوقة جيداً كاملة عند بلوغ سن 12 شهر.		
12	بدأت بإعطاء طفلي اللحوم المفرومة عند بلوغه سن 6 – 8 شهور.		
13	بدأت بإعطاء طفلي من 2 – 3 وجبات غذائية عند بلوغه سن 6 – 8 شهور.		
14	بدأت بإعطاء طفلي من 3 - 4 وجبات غذائية عند بلوغه سن 9 شهور.		
15	أقوم بإيقاف الوجبات الغذائية في حالة مرض طفلي.		
16	أقوم بإيقاف الوجبات الغذائية في حالة حدوث إسهال لدى طفلي.		
17	أوقفت الرضاعة الطبيعية لطفلي واستبدلتها بالغذاء التكميلي بعد بلوغه سن 6 شهور.		
18	أوقفت كل أنواع الحليب واكتفيت بالغذاء التكميلي فقط عند بلوغ الطفل 12 شهراً.		
19	لا أقوم بإعطاء طفلي الرضاعة الطبيعية والغذاء التكميلي في نفس اليوم.		

شكراً لحسن تعاونكم ،،،،

Annex (3): Knowledge and Practice of Exclusive Breastfeeding and Complementary Feeding Questionnaire (English version)

Exclusive Breastfeeding (During the first 6 months of age)

Knowledge about Exclusive Breastfeeding		**Yes**	**No**
1.	I know that I should give my baby breast milk only during the first 6 months of age		
2.	Breast milk is healthier than formula milk		
3.	Breast milk is digested easier compared to infant's formula milk		
4.	Breast milk and formula milk have the same benefit for the baby		
5.	Formula milk is more beneficial compared to breast milk		
6.	Breast milk causes diarrhea to the baby		
7.	Breast milk causes allergy to the baby		
8.	Breast milk contains the antibodies needed to strengthen the immune system		
9.	Giving the water along with breast milk is necessary for the baby's health during the first 6 months of age.		
10.	Giving the juice along with breast milk during the first 6 months of age is necessary for the baby's growth		
11.	Giving the infant formula along with breast milk during the first 6 months of age is necessary for increasing baby's body weight.		
12	During the first two months of age, the baby needs 8 – 12 feedings /day		
13	By the third month, the baby needs 6 – 8 feedings /day		
14	Average duration of each feeding is about 30 minutes		
Practice of Exclusive Breastfeeding		**Yes**	**No**
1.	I give my baby breast milk only during the first 6 months of age		
2.	I give my baby formula milk only during the first 6 months of age		
3.	I give my baby breast milk and formula milk during the first 6 months of age		
4.	I give my baby water and breast milk during the first 6 months of age		
5.	I give my baby juice and breast milk during the first 6 months of age		
6.	I stop breast milk and give my baby formula milk when he is sick		
7.	I stop breast milk and give my baby formula milk when I feel tired or exhausted		
8	I feed my baby between 8 – 12 feedings during the first two months of age		
9	I feed my baby between 6 - 8 feedings by the third month of age		
10	I feed my baby for about 30 minutes each feeding		

Complementary feeding (from 6 – 12 months of age)

Knowledge about Complementary Feeding		Yes	No
1	I should start complementary feeding at 3 months of age		
2	I should start complementary feeding at 4 months of age		
3	I should start complementary feeding at 5 months of age		
4	I should start complementary feeding at 6 months of age		
5	I should start giving my baby water at 6 months of age		
6	I should start giving my baby soft foods made of cereals and crushed grains at 6 months of age		
7	I should start giving my baby mashed fruits at 6 – 8 months of age		
8	I should start giving my baby mashed vegetables at 6 – 8 months of age		
9	I should start giving my baby boiled egg yolk at 7 months of age		
10	I should start giving my baby boiled egg white at 12 months of age		
11	I should start giving my baby whole egg 12 months of age		
12	The egg should be boiled well to be given as complementary food at 12 months of age		
13	I should start giving my baby roasted meat at 6 – 8 months of age		
14	I should give my baby 2 – 3 meals per day at 6 – 8 months of age along with breastfeeding or formula milk		
15	I should give my baby 3 - 4 meals per day at 9 months of age along with breastfeeding or formula milk		
16	After age of 6 months, I should stop breastfeeding and give my baby formula milk and complementary feeding		
17	At 12 months of age, I should stop all kinds of milk and give my baby complementary feeding only		
18	I should stop the meals when my baby is sick		
19	I should not give my baby breastfeeding and complementary feeding in the same day		
Practice of Complementary feeding		**Yes**	**No**
1.	I gave my baby complementary feeding at 3 months of age		
2.	I give my baby complementary feeding at 4 months of age		

3.	I give my baby complementary feeding at 5 months of age		
4.	I give my baby complementary feeding at 6 months of age		
5.	I give my baby water at 6 months of age		
6.	I start giving my baby mashed cereals at 6 months of age		
7.	I give my baby mashed fruits at 6 – 8 months of age		
8.	I give my baby mashed vegetables at 6 – 8 months of age		
9.	I give my baby boiled egg yolk at 7 months of age		
10.	I give my baby boiled egg whites at 12 months of age		
11.	I give my baby whole boiled egg at 12 months of age		
12.	I give my baby roasted meat at 6 – 8 months of age		
13.	I give my baby 2 – 3 meals at 6 – 8 months of age		
14	I give my baby 3 - 4 meals at 9 months of age		
15	I stop the meals when my baby is sick		
16	I stop the meals when my baby has diarrhea		
17	I stopped breastfeeding at 6 months of age, and substituted that with complementary feeding		
18	At 12 months of age, I stop all kinds of milk and give my baby complementary feeding only.		
19	I do not give breastfeeding and complementary feeding in the same day		

Annex (4): List of names of experts for examining the contents of the questionnaire

Dr. Adnan Al Whidi	Ard El Insan Charity
Dr. Khalil Shuaib	Palestine College of Nursing
Dr. Ahmad Nijm	Al Azhar University of Gaza
Dr. Mohamad Al Jirjawy	Palestine College of Nursing
Dr. Arefa Al Kasseh	The Islamic University of Gaza
Dr. Akram Abu Salah	Palestine College of Nursing
Dr. Abdel Rahman al Hams	Palestine College of Nursing
Dr. Ali El Khatib	University College of Applied Sciences
Dr. Ahmad El Shaer	The Islamic University of Gaza

Annex (5): Approval from Al Quds University

Al Quds University
Faculty of Health Professions
Nursing Dept. –Gaza

جامعة القدس
كلية المهن الصحية
دائرة التمريض- غزة

التاريخ:2021/8/14

حضرة الأخ/ د. رامي عيد العبادلة حفظه الله
مدير عام الإدارة العامة لتنمية القوى البشرية بوزارة الصحة
السلام عليكم ورحمة الله وبركاته

الموضوع: تسهيل مهمة الطالب/ إبراهيم رياض عبد الرحمن أبو صالح

تهديكم كلية المهن الصحية بجامعة القدس أطيب التحيات، ونرجو من حضرتكم مساعدة الطالب المذكور بخصوص جمع بيانات بحثية خاصة بموضوع:

Mothers' Knowledge and Practice Regarding Breast and Complementary Feeding of Infants in Gaza Strip, Palestine

وذلك من مرافقي الأطفال الذين يصطحبون أطفالهم الرضع في عمر ٧-١٢ شهر إلى مراكز الرعاية الأولية بوزارة الصحة (مركز شهداء جباليا- مركز شهداء الرمال- مركز شهداء الدرج- مركز شهداء الزيتون- مركز شهداء دير البلح- مركز شهداء خانيونس - مركز شهداء رفح) وذلك لمتطلبات رسالة الماجستير الخاصة به لبرنامج تمريض صحة الأم والطفل.

وتفضلوا بقبول وافر الاحترام والتقدير

14/8/2021

د. حمزة محمد عبد الجواد
أستاذ مساعد في علوم التمريض
منسق برامج ماجستير التمريض بغزة
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دائرة التمريض
Nursing Department

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تلفون: 08 2644210+08 2644220
تلفاكس: 082644220

Annex (6): Approval from Helsinki Committee

المجلس الفلسطيني للبحث الصحي

Palestinian Health Research Council

تعزيز النظام الصحي الفلسطيني من خلال مأسسة استخدام المعلومات البحثية في صنع القرار

Developing the Palestinian health system through institutionalizing the use of information in decision making

Helsinki Committee

For Ethical Approval

Date: 2021/08/02 **Number:** PHRC/HC/965/21

Name: Ibrahim Abu Saleh الاسم:

We would like to inform you that the committee had discussed the proposal of your study about:

نفيدكم علماً بأن اللجنة قد ناقشت مقترح دراستكم حول:

Mothers' Knowledge and Practice Regarding Breast and Complementary Feeding of Infants in Gaza Strip, Palestine

The committee has decided to approve the above mentioned research. Approval number PHRC/HC/965/21 in its meeting on 2021/08/02

و قد قررت الموافقة على البحث المذكور عاليه بالرقم والتاريخ المذكوران عاليه

Signature

Member **Member** D. Yehia Abed

Chairman

Genral Conditions:-

1. Valid for 2 years from the date of approval.
2. It is necessary to notify the committee of any change in the approved study protocol.
3. The committee appreciates receiving a copy of your final research when completed.

Specific Conditions:-

E-Mail:pal.phrc@gmail.com

Gaza - Palestine غزة - فلسطين

شارع النصر - مفترق العيون

Annex (7): Approval from Ministry of Health

State of Palestine
Ministry of health

دولة فلسطين
وزارة الصحة

السيد : رامي عيد العبادله المحترم

التاريخ:30/08/2021
رقم المراسلة 758991

مدير عام بالوزارة /الإدارة العامة لتنمية القوى البشرية/وزارة الصحة

السلام عليكم ,,,

الموضوع/ تسهيل مهمة الباحث// إبراهيم أبو صالح

التفاصيل //
بخصوص الموضوع أعلاه، يرجى تسهيل مهمة الباحث/ **إبراهيم رياض أبو صالح**
الملتحق ببرنامج ماجستير تمريض صحة الأم والطفل ـ جامعة القدس أبو ديس بغزة في إجراء بحث بعنوان: ـ
"Mothers' Knowledge and Practice Regarding Breast and Complementary Feeding of Infants in Gaza Strip, Palestine"

حيث الباحث بحاجة لتعبئة استبانة من عدد من الأمهات في اقسام التطعيم– اثناء تطعيم اطفالهن ـ في مراكز الرعاية الصحية الأولية (مركز شهداء جباليا ـ مركز شهداء الرمال ـ مركز شهداء الدرج ـ مركز شهداء الزيتون ـ مركز شهداء دير البلح ـ مركز شهداء خانيونس ـ مركز شهداء رفح).
نأمل توجيهاتكم لذوي الاختصاص بضرورة الحصول على الموافقة المستنيرة من الأمهات اللاتي هن على استعداد للمشاركة في الدراسة ومن ثم تمكين الباحث من التواصل معهن، بما لا يتعارض مع مصلحة العمل وضمن أخلاقيات البحث العلمي، ودون تحمل الوزارة أي أعباء أو مسئولية.
وتفضلوا بقبول التحية والتقدير،
ملاحظة /
البحث المذكور حاصل على موافقة لجنة اخلاقيات البحث الصحي (لجنة هلسنكي)
تسهيل المهمة الخاص بالدراسة أعلاه صالح لمدة 3 أشهر من تاريخه.

محمد ابراهيم السرساوي
مدير دائرة/الإدارة العامة لتنمية القوى البشرية

التحويلات

■ محمد ابراهيم محمد السرساوي(مدير دائرة)	← رامي عيد سليمان العبادله(مدير عام بالوزارة)	إجراءاتكم بالخصوص(30/08/2021)
■ رامي عيد سليمان العبادله(مدير عام بالوزارة)	← ماهر محمود عبد الهادي شامية(مدير عام بالوزارة)	إجراءاتكم بالخصوص(30/08/2021)
■ ماهر محمود عبد الهادي شامية(مدير عام بالوزارة)	← مجدي ابراهيم اشتيوي اضهير(مدير دائرة)	لعمل اللازم(30/08/2021)
■ ماهر محمود عبد الهادي شامية(مدير عام بالوزارة)	← موسى رجب حمدان عابد(طبيب بشري أخصائي)	لعمل اللازم(30/08/2021)

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عنوان الدراسة: مستوى المعرفة والممارسة للرضاعة الطبيعية والغذاء التكميلي للأطفال لدى الأمهات في قطاع غزة.

إعداد: ابراهيم رياض أبو صالح

إشراف: د. حمزة عبد الجواد

ملخص الدراسة

تعتبر التغذية الصحيحة للأطفال ذات أهمية عالية لتجنب سوء التغذية والإصابة بالأمراض. هدفت الدراسة إلى تفحص مستوى المعرفة والممارسة للرضاعة الطبيعية والغذاء التكميلي لدى الأمهات في قطاع غزة، كما هدفت إلى تحديد العوامل المؤثرة في مستوى المعرفة والممارسة للرضاعة الطبيعية والغذاء التكميلي. استخدم الباحث المنهج الوصفي المقطعي في هذه الدراسة، وقد تم اختيار عينة الدراسة بطريقة النسبة والتناسب بحسب توزيع مجتمع الدراسة، حيث تكونت عينة الدراسة من 375 من الأمهات اللواتي لديهن أطفال تتراوح اعمارهم بين 7 – 12 شهر تم اختيارهن خلال تواجدهن في أقسام التطعيم في مراكز الرعاية الأولية الحكومية في قطاع غزة (مركز شهداء جباليا، مركز شهداء الرمال، مركز شهداء الدرج، مركز شهداء الزيتون، مركز شهداء دير البلح، مركز شهداء خانيونس، مركز شهداء رفح). لجمع البيانات قام الباحث بإعداد استبانة لقياس مستوى المعرفة والممارسة للرضاعة الطبيعية والغذاء التكميلي، وقد تم فحص صدق المحتوى من خلال مجموعة من المحكمين، كما تم إجراء دراسة استطلاعية مكونة من 37 أم من أمهات الأطفال، وذلك بهدف التأكد من ثبات الاستبانة وقد كانت قيمة معامل ألفا كرونباخ 0.789. بينت النتائج أن 85.6% من الأمهات كانت ربات بيوت، 37.3% منهن حاصلات على التعليم الجامعي، وبلغ متوسط الدخل الشهري 923.81 شيكل، 81.6% من الأمهات ولدن في مستشفى حكومي. بالنسبة لخصائص الأطفال فقد بينت النتائج أن 86.9% كانت لديهم فترة الحمل كاملة، وبلغ متوسط الوزن عند الولادة 3257 جرام.

أظهرت النتائج أن 78.4% من الأمهات تلقين معلومات حول الرضاعة الطبيعية الخالصة خلال الزيارات لعيادة فحص الحوامل، كما أن 79.5% من الأمهات تلقين معلومات حول الغذاء التكميلي خلال الزيارات لعيادة فحص الحوامل. وتبين أن 96.8% من الأمهات قمن بإرضاع أطفالهن خلال الساعة الأولى بعد الولادة، 68.5% من الأمهات مارسن الرضاعة الطبيعية لأطفالهن لمدة تزيد عن 6 شهور، 47.5% أرضعن أطفالهن حليب الأطفال، كما أن 40% من الأمهات بدأن الغذاء التكميلي لأطفالهن عند بلوغ اعمارهم 6 شهور.

وأظهرت النتائج وجود مستوى متوسط من المعرفة (75.94%) والممارسة (66.08%) للرضاعة الطبيعية الخالصة، ووجود مستوى متوسط من المعرفة (75.73%) والممارسة (73.82%) للغذاء التكميلي، وتبين وجود علاقة ذات دلالة إحصائية بين المعرفة والممارسة للرضاعة الطبيعية الخالصة (ر= 0.464)، والمعرفة والممارسة للغذاء التكميلي (ر= 0.525).

وبينت النتائج وجود مستوى مرتفع ذو دلالة إحصائية في كل من المعرفة والممارسة للرضاعة الطبيعية الخالصة لدى الأمهات من محافظة الشمال، لدى الأمهات الحاصلات على التعليم الجامعي، الأمهات التي حملن من 1 – 3 مرات، الأمهات اللاتي لديهن عدد أكبر من الزيارات لعيادة فحص الحوامل، والأمهات اللاتي ولدن ولادة طبيعية. في المقابل بينت النتائج وجود مستوى منخفض ذو دلالة إحصائية في كل من المعرفة والممارسة للرضاعة الطبيعية الخالصة لدى الأمهات اللاتي لديهن أسرة كبيرة (9 أفراد فأكثر)، الأمهات اللاتي ولدن 7 مرات فأكثر، والأمهات اللاتي لديهن 7 أطفال أحياء فأكثر.

وأظهرت النتائج تدني مستوى الممارسة للغذاء التكميلي لدى الأمهات اللاتي ولدن في المستشفيات الحكومية، في حين تبين وجود مستوى مرتفع من المعرفة والممارسة للغذاء التكميلي لدى الأمهات ذوات الحمل المتباعد لمدة 5 سنوات فأكثر.

خلصت الدراسة إلى وجود مستوى متوسط من المعرفة والممارسة في كل من الرضاعة الطبيعية الخالصة والغذاء التكميلي، كما خلصت إلى وجود بعض العوامل المؤثرة في مستوى المعرفة والممارسة للرضاعة الطبيعية الخالصة والغذاء التكميلي تمثلت في مكان السكن، المستوى التعليمي للأم، العمل، الدخل الشهري، عدد مرات الحمل والولادة، وحجم الأسرة. أوصت الدراسة ببذل المزيد من الجهد في التثقيف الصحي لتوعية الأمهات بالبدء في إعطاء الطفل الغذاء التكميلي بعد الشهر السادس من عمر الطفل.