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Mothers' knowledge, Attitude, and practices toward breastfeeding and complementary feeding in AL-Sabeen Hospital-Sana'a

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Dedication

This research is dedicated to:

Our great parents, who never stop giving of themselves

in countless ways,

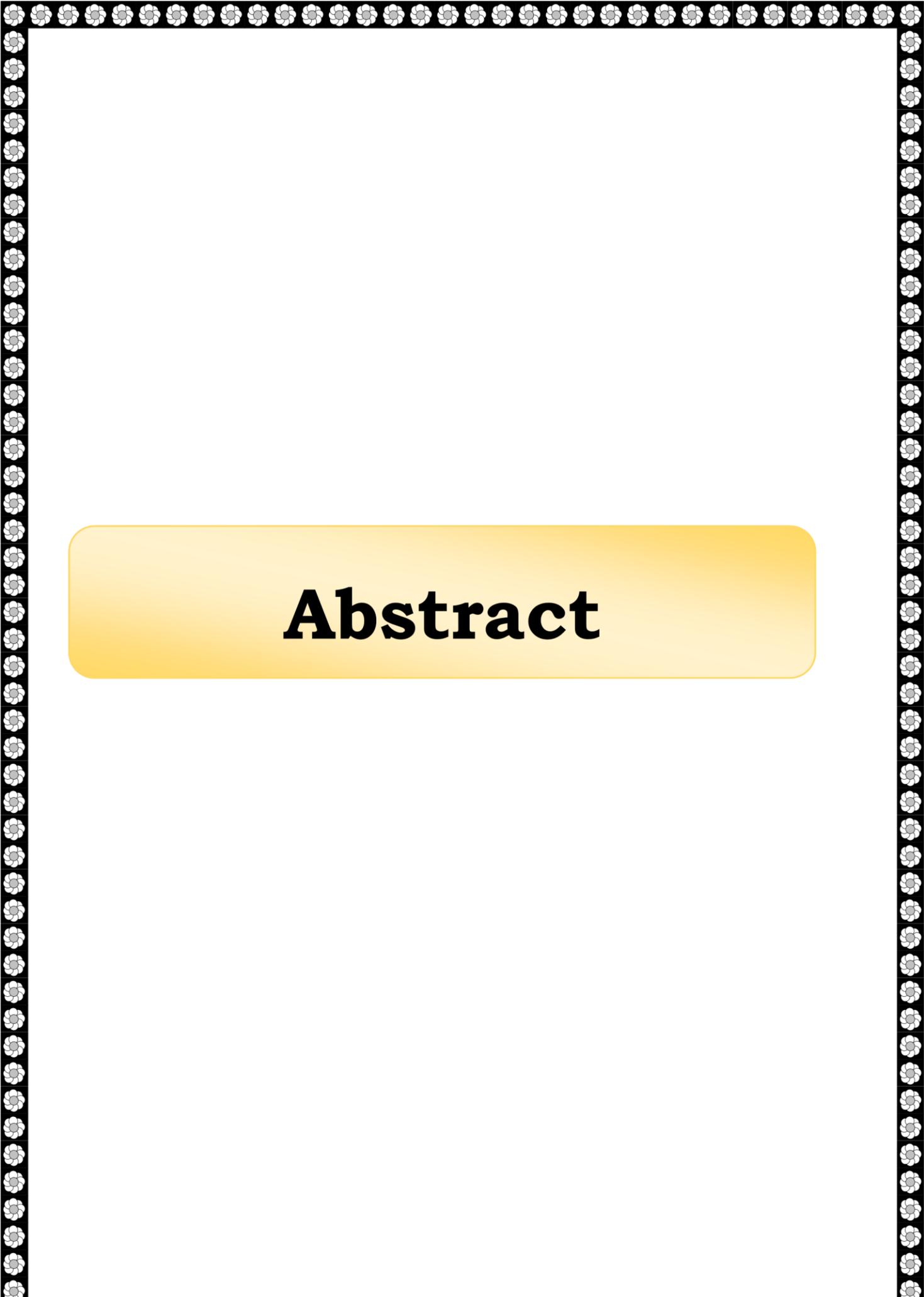
Our beloved brothers and sister, who leads me through

the valley of darkness with light of hope and support,

To all our family, the symbol of love and giving,

Our friends who encourage and support me,

All the people in our life who touch my heart



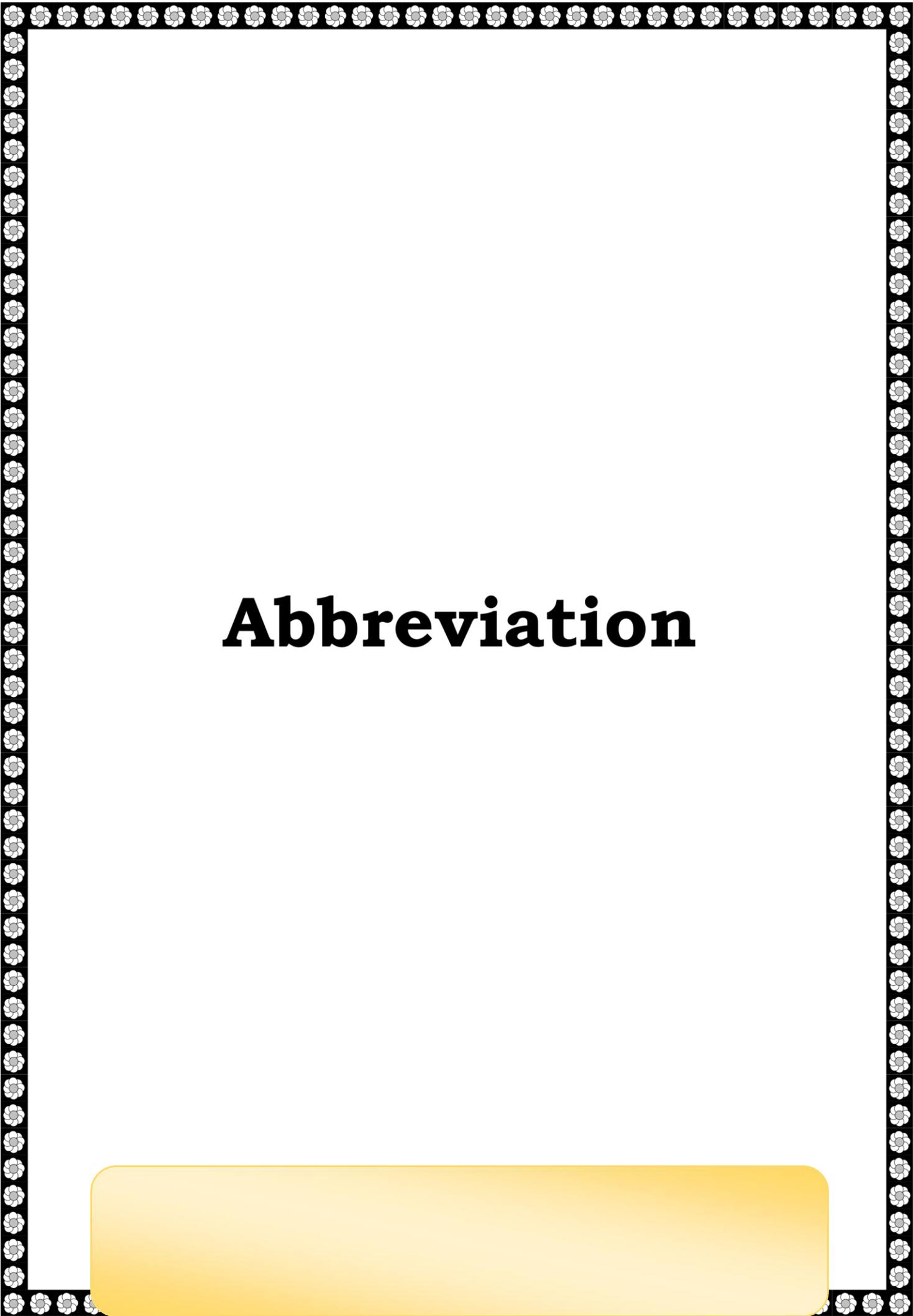
Abstract

Mothers' knowledge, Attitude, and practices toward breastfeeding and complementary feeding in AL-Sabeen Hospital-Sana'a- Yemen.

Abstract

Introduction: Breastfeeding is generally considered by health professionals as the ideal feeding practice for infants. It is the first communication pathway between the mother and her infant also complementary feeding is the greatest contributor to health and nutrition status of infants and young children. **The Aim of the present study** To assess the knowledge, attitude, and practice of mothers regarding to breastfeeding and complementary feeding at Al-Sabeen hospital, Sana'a city, Yemen. **Methods:** Descriptive research design study was utilized in this study, a convenient sample of 337 mothers. **Setting:** AL-Sabeen Hospital-Sana'a included 337 mothers. **Tools** utilized for data collection were Tool (I) part (1): Personal data, part (2): Mother's knowledge. Tool (II): Mother's attitude toward breastfeeding & complementary feeding and Tool (III): reported practice checklist. **Results:** Illustrated that more than one third 37.1% of mothers were had poor score of knowledge about breastfeeding and complementary feeding, 52.8% had negative attitude toward breastfeeding and complementary feeding and 43.1% of them were had poor practices. There was statistical significant difference between age, level of education and income of mothers with the total score of knowledge, there was statistical significant difference between level of education with total score of attitude. Also there was statistical significant difference between mother's educational level with the total score of practices. **In Conclusion:** Most of the studied Mothers had poor score of knowledge and negative attitude toward breastfeeding and complementary feeding while the majority of them had poor practices. **Recommendations:** Educational and training programs should target mothers about breastfeeding and complementary feeding.

Key words: Attitude, Breastfeeding, Complementary feeding, Knowledge, Mothers, Practice.



Abbreviation



List of Abbreviation

Abbreviation	Term
AAP	American Academy of Pediatrics
BMS	Breastmilk Substitute.
CSO	<i>Central Statistical Organization</i>
EBF	Exclusive Breast Feeding.
HAZ	High for Age
IYCF	Infant and Young Child Feeding
kcal	kilocalories.
LAZ	Length of Age.
MOPHP	<i>Ministry of Public Health and Population</i>
PAPFAM	<i>Pan Arab Program for Family Health.</i>
SES	Socioeconomic status.
UNICEF	United Nations Children's Fund.
WHA	World Health Assembly.
WHO	World Health Organizations.

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Introduction

This chapter deals with background of the study, statement of the problem, justification of study, objectives of the study, research questions, definition of terms, delimitation of the study.

1.1. Background of the Study

Breastfeeding is an art that has to be learned. A few women breastfeed easily from the first day and never have a problem, but many meet challenges somewhere along the road. When that happens, most women need encouragement and skilled support to continue to breastfeed effectively (*Vinther et, al.1997*).

When breast milk is no longer enough to meet the nutritional needs of the infant, complementary foods should be added to the diet of the child. The transition from exclusive breastfeeding to family foods, referred to as complementary feeding, typically covers the period from 6 to 18-24 months of age, and is a very vulnerable period. It is the time when malnutrition starts in many infants, contributing significantly to the high prevalence of malnutrition in children less than five years of age world-wide. World Health Organization (WHO) estimates that 2 out of 5 children are stunted in low-income countries (*WHO 2010*).

Low-quality complementary foods combined with inappropriate feeding practices put under-two years' children in developing countries at high risk for under nutrition and its associated outcomes. Too often, solid, semi-solid and soft foods are introduced too soon or too late. The frequency and amount of food offered may be less than required for normal child growth, or their consistency or nutrient density may be inappropriate in relation to the child's needs. Too much of a poor complementary food could displace the more nutritive breast milk in the child's diet (*UNICEF; 1997*).

Education for improved feeding practices is another essential component. Evidence shows that mothers are willing to prepare enriched complementary foods if they are culturally acceptable, and that improving maternal knowledge and feeding practices can lead to increased dietary intake and growth of infants. Good counseling and negotiation with the mother in health system and community health care settings is crucial to ensuring optimal complementary feeding practices (*UNICEF; 2004*).

Problem statement

The nutritional status of the child can be influenced by complementary feeding. Inappropriate infant feeding practices results in feeding difficulties and malnutrition ultimately leading to increased morbidity and mortality in children. Complementary feeding practices greatly depend on cultural habits and ethnicity (*WHO, 2010*).

Globally, breastfeeding practices have been decreasing over the years. Wet nursing, an ancient social custom, was widely accepted for many years (*Fildes 1995*).

In global context, figures from different European countries indicate a wide variation in the age at introduction of complementary foods, with several showing marked departures from the current WHO recommendation to introduce complementary feeding only from the seventh month onward. For example, 34 percent of mothers in Italy reported introducing complementary foods before 4 months, in Germany, 16 percent had done so by 3 months, whereas in the UK 2005 Infant Feeding Survey, 51percent of infants were reported to have received complementary foods before 4 months. Mothers in some countries may be delaying the introduction of complementary feedings for too long. One study showed that about 20 percent of German mothers thought exclusive breast-feeding should continue for >6 months. It is likely that cultural and economic factors and also maternal and infant caretaker's responsible for variations in practice between and within countries (*ESPGHAN.,2008*). The problems are more serious in developing countries. About 120 million infants were born, the great majority of whom (85%) live in developing countries. Ten percent of these children died before their first birthday and another 4 percent died before they were five (*WHO.,2017*).

In developing country's context, childhood under nutrition remains a major health problem in resource-poor settings. Approximately one-third of children less than five years of age in developing countries are stunted (low height-for-age), and large proportions are also deficient in one or more micronutrients. Recent data shows that just over half of 6-9-monthold are breastfed and given complementary foods and only 39 percent of 20-23-month-old are provided with continued breastfeeding. It is well recognized that the period from birth to two years of age is the "critical window" for the promotion of optimal growth, health, and development. Insufficient quantities and

inadequate quality of complementary foods, poor child-feeding practices and high rates of infections have a detrimental impact on health and growth in these important years. Even with optimum breastfeeding children will become stunted if they do not receive sufficient quantities of quality complementary foods after six months of age. An estimated six per cent or six hundred thousand under-five deaths can be prevented by ensuring optimal complementary feeding (*UNICEF 2006*).

In Yemen nutrition Cluster partners, including the Ministry of Public Health and Population, UN Agencies, and National and International NGOs call for support for appropriate infant and young child feeding in the current emergency in Yemen to avoid unnecessary illness and death in children. This can be achieved by promoting, protecting, and supporting breastfeeding and appropriate complementary feeding and caution about unnecessary and potentially harmful donations and use of breastmilk substitutes (*UNICEF.,2017*).

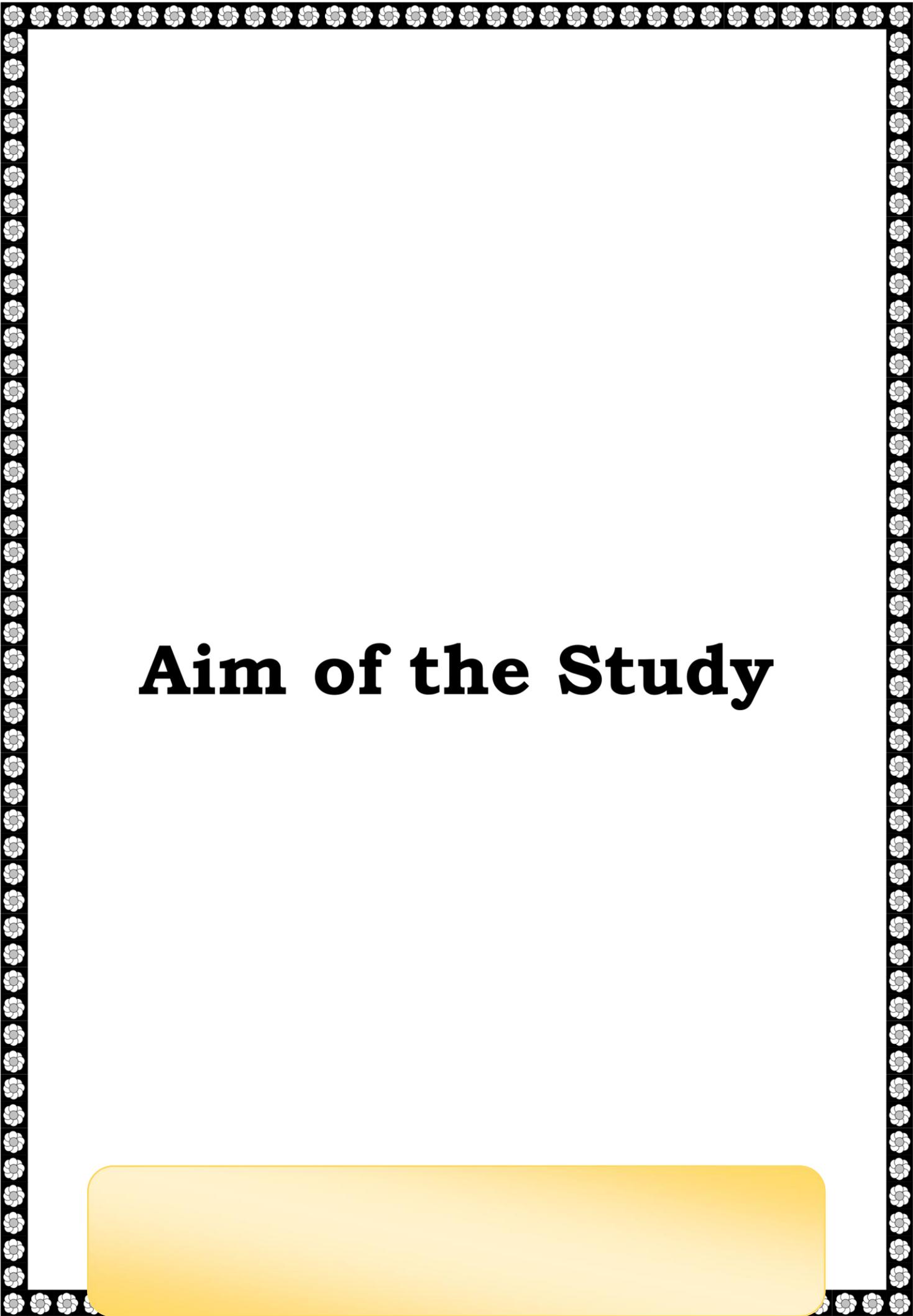
During emergency situations, such as the current crisis in Yemen, disease and death rates among children under five are generally higher than for any other age group. The younger the infant, the higher the risk. Mortality may be particularly high due to the combined impact of poor sanitation, disease outbreaks, infant formula donations, lack of access to healthcare and high rates of malnutrition. The fundamental means of preventing malnutrition, morbidity and mortality among infants and young children is to ensure appropriate feeding and care. Therefore, with the ongoing conflict in Yemen along with poor IYCF indicators, a renewed commitment by all stakeholders is needed to support child survival, growth and development and avoid unnecessary illness and death in children (*UNICEF., 2020*).

Justification of study

Breastfeeding is one of the most effective ways to ensure child health and survival in addition to maternal health. However, nearly 2 out of 3 infants are not exclusively breastfed for the recommended 6 months—a rate that has not improved in 2 decades. Breast milk is the ideal food for infants. It is safe, clean and contains antibodies which help protect against many common childhood illnesses .

The poor quality of young children's diets is a key driver of all forms of malnutrition (stunting, wasting, micronutrient deficiencies and overweight and obesity), yet we know too little about the barriers faced by policymakers, programme planners, service providers and families at policy, service delivery, community and household levels. To make necessary improvements to policies, programmes and behaviors, governments and their partners need data, information and evidence to assess and monitor children's diets and make decisions on how to accelerate progress. Conducting a situation analysis can provide evidence-based insight into the drivers and determinants of young children's diets specific to a geographical area or population of interest. These context-specific findings can help policymakers and programme planners identify and prioritize the strategic actions necessary to help families overcome the economic, political, social and cultural barriers preventing them from providing their children with enough safe, nutritious and ageappropriate food (*UNICEF., 2020*)

Appropriate feeding practices are of fundamental importance for the survival, growth, development, health and nutrition of infants and children. To the mother, breast feeding fastens uterus involution thus reducing the risk of postpartum hemorrhage, reduces the risk of cancers and help mothers reduce weight postpartum. However, if breast feeding is not done adequately and promptly, it imposes negative outcomes on both the mothers and the children. The 1990's saw an upsurge of several worldwide effort to achieve goals. Examples of these are; the Innocent Declaration on Breast Feeding (1990), the World Summit for Children (1990), the International Conference of on Nutrition (1992) and the International Conference on Population and Development (1994). All agreed on the need to create the right environment for women to breastfeed the children.



Aim of the Study



Aim of the Study

- General Objective

To assess the knowledge, attitude, and practice of breastfeeding and complementary feeding among mothers attending Al-Sabeen hospital, Sana'a city, Yemen. **Specific objectives**

- To assess knowledge toward breastfeeding and complementary feeding among mothers in Al-Sabeen hospital, Sana'a city, Yemen.
- To assess attitudes and practice toward breastfeeding and complementary feeding among mothers in Al-Sabeen hospital, Sana'a city, Yemen.
- To describe the socio-demographic variables among Yemeni mothers in Al-Sabeen hospital, Sana'a city, in terms of knowledge, attitudes and practice toward breastfeeding and complementary feeding.
- To assess the relationship between mother's knowledge, attitudes, practice about breastfeeding and complementary feeding and their socio-demographic.

Research Questions

Below are the research questions that the study attempts to answer

1. What the percentage of mother's whom breastfeed their infants?
2. What are the knowledge, attitude and practice of mothers on breast and complementary infant feeding?
3. Is there relationship between the socio-demographic variables and knowledge, attitude and practice of mothers on breast and complementary infant feeding?
4. Does the knowledge of mothers regarding the breast feeding and complementary feeding improve their practice?

Definition of Terms

- ☒ **Breastfeeding:** is a means of infant feeding where infants exclusively fed on breast milk for at least 6 months .
- ☒ **Breast feeding duration:** the time length for which the child is breastfeed with or without supplements measured by months (years).
- ☒ **Complementary feeding:** The infant receives breast milk and solid or semi-solid foods and allowed any food or liquid, including non-human milk.
- ☒ **Exclusive breast feeding:** refers to feeding infants only with breast-milk
- ☒ **Infant:** Children whose age is under two years of life
- ☒ **Infant feeding:** is feeding a child until two year of age.
- ☒ **Late adulthood mothers:** this indicates mothers whose age range is in between 45-60 and above.
- ☒ **Maternal attitude:** it is the like and dislike of breast and complementary infant feeding that mothers exhibit.
- ☒ **Maternal knowledge:** refers to the extent to which the breast and complementary infant feeding mothers respond correctly to items asking for their know-how or skills in feeding their infants.
- ☒ **Maternal practice:** this refers to any behaviour or action that breast and complementary feeding mothers disclose in relation to infant feeding.
- ☒ **Middle adulthood mothers:** in this research it refers to mothers whose age is in between 25-45
- ☒ **Socio-demographic variables:** Are significant variables like maternal age, income, educational level, employment/occupation residential areas etc.
- ☒ **Younger mothers:** in this study it refers to mothers whose age is below 18-24 years.

Limitation of the Study

While conducting this research a number of limitations have been encountered. Among these, for example financial and time constraints, transportation problems to go to research sites as well as the shortage of resource were some of the limitations.

Delimitation of the Study

Because of financial, time, and other resource constraints, this study is delimited

in terms of area coverage and extent of the study and research methodology. As to the study area, Al-Sabeen Maternal Hospital is covered by the study. Thematically, the study is concerned only with knowledge, attitude and practice of mothers on breast and complementary infant feedings. Methodologically, this research has employed both quantitative and qualitative techniques. However, only 337 breast feeding Yemeni mothers who has children from birth to Five years old were the study participants



Review of Literature

Physiology And Biomechanics of Lactation

Lactation, the production of milk, occurs from the mammary glands, which are more aptly named breasts. The name “mammary” specifically comes from the “Latin word for breast” (*Argani et al.,2015*).The development of the breast does not fully occur until puberty. Although infants are born with nipples and areolae, mammary glands do not begin to grow through the growth of stroma and glandular tissue until puberty (*Beesley et al .,2015*).Although breasts can change depending on pregnancy and lactation, the anatomy of the breast is primarily composed of three major components: skin, subcutaneous tissue, and breast tissue (*Russo et al .,2014*). The breast tissue is primarily composed of stroma, which consists of adipose tissue and connective tissues. The stroma is basically the entire breast excluding the skin, duct system, lactiferous sinus, and lobules (*Black et al., 1998*). Although the composition and amount of adipose tissue varies from woman to woman, the amount of fatty tissue does not impact the milk fat composition or volume of milk. There are multiple components of the mammary tissues, which are exocrine glands, which are ductaltubular--alveolar structures. The duct system in the breast helps transport the milk from the lobules, where the milk is made, to the lactiferous sinus, which is where the milk is stored right before being excreted by suckling of the nipple(*Russo et al .,2014*). Figure A shows the anatomy of the breast and illustrates the secretory system and its parts.

The image shows how the lobules connect to lactiferous ducts and how the lactiferous ducts connect to the lactiferous sinus.

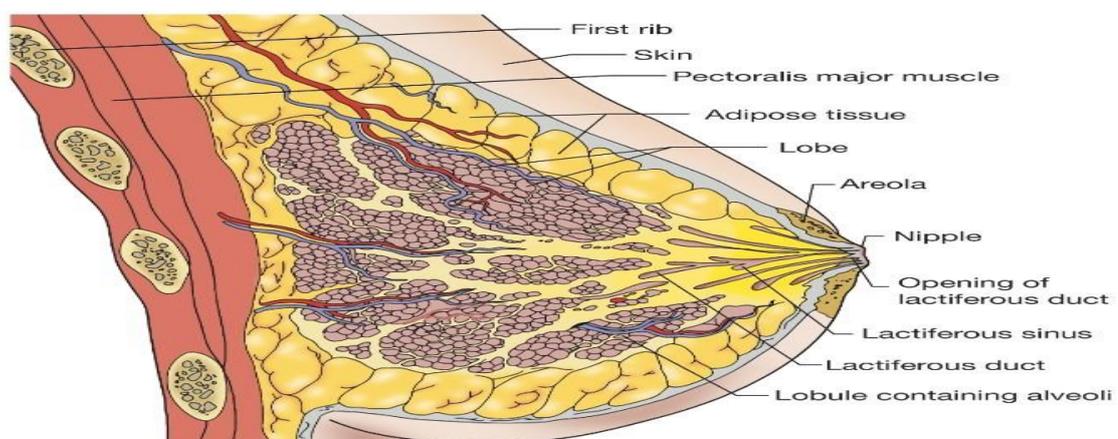


Figure A: Anatomy of the Breast. This image illustrates the basic anatomy of the female breast. The major components involved in lactation are the lobules, lactiferous duct, and the lactiferous sinus. [Image from: MUSOM Graphic Design
[http://musom.marshall.edu/graphicdesign/ibooks/Reproductive%20Normal.html#prettyPhoto\[pp_gal\]/6/](http://musom.marshall.edu/graphicdesign/ibooks/Reproductive%20Normal.html#prettyPhoto[pp_gal]/6/)]

Nutrition context in Yemen.

Before the conflict started in 2015, Yemen's nutrition situation was poor with 47% of children under five years being stunted, 16% acutely malnourished, and 5% severely acutely malnourished (*YNDHS, 2013*). One-third of children under 5 years showed symptoms of diarrhea in the 2 weeks before the survey. Estimated anemia prevalence in children aged 6-59 months is 86% (*Health Systems Profile-2010, Yemen Regional Health Systems Observatory- EMRO*).

Regarding women's nutritional status, 25% are underweight and 24% of the women are overweight or obese, overweight being more frequent in urban settings, and 71% of pregnant and lactating women suffer from anemia. Geographical access to health services is difficult, with 50% of the overall population having access to health care and only 30% in rural areas (*Ministry of Public Health and Population (MOPHP), Central Statistical Organization (CSO) [Yemen], Pan Arab Program for Family Health (PAPFAM), and ICF International (2015)*).

Overview of Infant and Young Child Feeding Practices (IYCF)

Early initiation of breastfeeding has slowly increased over the past decades. In 2003, 53% of infants were breastfed within one hour of birth, and 76% began breastfeeding within one day of birth. One third of newborns in Yemen received prelacteal feeds. Although 97% of children are breastfed at some time, only 10% of infants under six months are exclusively breastfed and 44% are fed using a bottle, indicating high rates of infant formula use. The use of infant formula was widely accepted in Yemen prior to the crisis, and several studies suggest that infant formula is seen as possible solution for feeding infants, the median duration of breastfeeding is 18 months

(*Yemen National IYCF strategy 2017-2021*).

Regarding complementary feeding, half of children aged 4 months already receive solid food while by the age of 6-9 months, only 65% were given complementary foods, showing both issues of late and early introduction of food (*Ministry of Public Health and Population (MOPHP), Central Statistical Organization (CSO) [Yemen],*

Pan Arab Program for Family Health(PAPFAM), and ICF International (2014)

Overall, only 15% of children ages 6–23 months reach the minimum acceptable diet. In the last decade, the use of unprotected water sources increased, increasing the risk of contamination since treatment of drinking water is not a common practice. Qat leaf

chewing is common in Yemen, and while not considered to be seriously addictive, its consumption is associated with low birth weight, and with a history of child mortality (*MIA et al., 2011*). Among women, 28% of women chew qat, and qat is believed to give strength to women after delivery. In some families the consumption of sugar is very important. In some cases, people buy more sugar per week than rice and flour. Sugar consumption can be related to qat consumption. Very often people are eating sweets or drinking soft drinks when they chew. A number of structural factors and constraints hinder efforts to implement effective IYCF programming in Yemen (*Yemen National IYCF strategy 2017-2021*). The limited sectorial coordination, the lack of national IYCF strategy and weak enforcement of existing legislation and guidelines, the health workforce not being sufficiently trained on IYCF, the lack of dedicated human resources, the low implementation of the Baby Friendly Hospital Initiative (BFHI), the pressure from infant formula industry on health workers, and frequent violations of BMS code.

Breastfeeding from 0 to less than 6 Months:

Breastfeeding is one of the most effective ways to ensure child health and survival. However, contrary to WHO recommendations, fewer than half of infants under 6 months old are exclusively breastfed (*WHO.,2021*).

Breastmilk is the ideal food for infants. It is safe, clean and contains antibodies which help protect against many common childhood illnesses. Breastmilk provides all the energy and nutrients that the infant needs for the first months of life, and it continues to provide up to half or more of a child's nutritional needs during the second half of the first year, and up to one third during the second year of life (*UNICEF., 2020*).

Breastfed children perform better on intelligence tests, are less likely to be overweight or obese and less prone to diabetes later in life. Women who breastfeed also have a reduced risk of breast and ovarian cancers. Inappropriate marketing of breastmilk substitutes continues to undermine efforts to improve breastfeeding rates and duration worldwide (*WHO.,2021*).

The Benefits of Breastfeeding

Research shows breastfed babies have a decreased likelihood for allergies and dental caries. They also benefit from appropriate jaw, teeth and speech development as well

as overall facial development. Breastfeeding has been shown to be protective against many illnesses and conditions, including:

- Painful ear infections
- Upper and lower respiratory ailments
- Colds, viruses, staph, strep and e coli infections
- Allergies
- Intestinal disorders
- Type 2 diabetes
- Certain childhood cancers (<https://americanpregnancy.org>).

The Basics of Breastfeeding

Breast milk is produced naturally by women and provides basic nutrition for a baby during the first several months of life. Your breast milk is made to order for your baby and provides the specific nutrients your baby needs to grow, both in size and maturity.

Breast milk has three different and distinct stages: colostrum, transitional milk, and mature milk.

Colostrum is the first stage of breast milk. It occurs during pregnancy and lasts for several days after the birth of the baby. It is either yellowish or creamy in color. It is also much thicker than the milk that is produced later in breastfeeding.

Colostrum is high in protein, fat-soluble vitamins, minerals, and immunoglobulins. Immunoglobulins are antibodies that pass from the mother to the baby and provide passive immunity for the baby. Passive immunity protects the baby from a wide variety of bacterial and viral illnesses. Two to four days after birth, colostrum will be replaced by transitional milk.

Transitional milk occurs after colostrum and lasts for approximately two weeks. The content of transitional milk includes high levels of fat, lactose, and watersoluble vitamins. It contains more calories than colostrum.

Mature milk is the final milk that is produced. 90% of it is water, which is necessary to keep your infant hydrated. The other 10% is comprised of carbohydrates, proteins, and fats which are necessary for both growth and energy. There are two types of mature milk:

Fore-milk: This type of milk is found during the beginning of the feeding and contains water, vitamins, and protein.

Hind-milk: This type of milk occurs after the initial release of milk. It contains higher levels of fat and is necessary for weight gain (<https://americanpregnancy.org>).

Benefits of breastfeeding

Various studies have shown that breastfeeding has psychological, nutritional, and immunological benefits for the infant in addition to maternal and economic benefits (*AAP Reports, 1997*).

Health benefits for the infant :

A- Physiological and cognitive development:

Research shows that EBF for up to six months is associated with increased weight and length gains. In an effort to increase global breastfeeding rates, the WHO and the United Nations Children’s Fund (UNICEF) launched the Baby-Friendly Hospital Initiative (BFHI) in 1991. This initiative is comprised of ten steps to successful breastfeeding with the aim of providing a health care environment for infants where breastfeeding is the norm (*Martens et al., 2000*). Maternity care facilities must implement each of the ten steps to earn the designation of “baby-friendly” hospital. Some of the steps of the BFHI include: “train all health care staff in skills necessary to implement the baby friendly policy; help mothers initiate breastfeeding within 30 minutes of delivery; give newborn infants no food or drink other than breastmilk, unless medically indicated; practice rooming-in by allowing mothers and infants to remain together 24-hours-a-day;” etc. (*UNICEF, 2007*). Breastfed infants have slower rates of gastric filling and faster rates of gastric emptying, which may contribute to growth rate (*Heinig and Dewey, 1996*). Results of two randomized studies in Honduras showed that EBF for 4 versus 6 months resulted in earlier development of certain milestones by the infants (*Dewey et al., 2001*). Infants exclusively breastfed for six months crawled and walked sooner, compared to infants who were exclusively breastfed for only four months. Similar results were reported in another study conducted to explore the relationship between breastfeeding and growth.

B-Nutritional benefits

The American Academy of Pediatrics (AAP) states that “the breastfed infant is the reference or normative model against which all alternative feeding methods must be measured with regard to growth, health, development and all other short and long term outcomes” (*AAP Reports, 1997*). Human milk is ideal for infant growth and development. The composition of breastmilk changes throughout the lactation period according to each infant’s requirement and has an appropriate balance of nutrients that are easily digested and bioavailable (*Dewey, 2000*). Studies have shown that breastmilk has low concentrations of the amino acids,

methionine, phenylalanine, and tyrosine, and high levels of cysteine and taurine. This composition of breastmilk prevents central nervous system damage in infants and aids in neurodevelopment (*Picciano, 2001*). According to the ADA, breastmilk not only provide energy but also contains enzymes such as lipoprotein lipase, pancreatic lipase, and amylase, which aid in the digestion of nutrients. Breastmilk also provides fat and fat- and water-soluble vitamins, and minerals contained in breastmilk are more bioavailable compared to infant formula and are present in required quantities for the infant (*ADA Reports, 1997; Cahill and Wagner, 2002*).

C-Immunological benefits and reduced infant morbidity:

A dose response relationship appears to exist between breastfeeding and infant immune function. For example, the more breastmilk that an infant receives during the first six months of infancy, the less likely the infant is to develop health problems including diarrhea and ear infections (*Scariati et al., 1997*). Breastfeeding is superior to infant formula feeding because breastmilk not only meets the nutritional requirements of the infant but also protects against infections through its defense factors such as secretory immunoglobulin A (IgA), lactoferrin, lysozyme, anti-inflammatory factors, cytokines, nucleotides, macrophages, and lymphocytes (*Oddy, 2001*). Hence, human milk enhances the infant's immune system (*Heinig and Dewey, 1996*). Studies have shown that infants who are exclusively breastfed have fewer gastrointestinal infections due to the "bifidogenic activity" of the human milk protein (*Liepke et al., 2002; Wright et al., 1998*). When rates of respiratory and gastrointestinal illnesses were compared in 776 breastfed and bottle-fed infants, it was observed that infants who were fed human milk substitutes had "five-fold more gastrointestinal illnesses, three-fold more respiratory illnesses and double the episodes of otitis media" (*Beaudry et al., 1995*).

Research shows that infants who were breastfed and given pre-lacteal feedings (colostrum) had fewer episodes of diarrhea (*Ziyane, 1999*). Studies confirming the relationship between breastfeeding and other childhood illnesses indicate that breastfeeding protects infants against infectious diseases including bacteraemia, meningitis, infant botulism, and urinary tract infections (*Heinig and Dewey, 1996*). Breastfeeding has also been shown to protect against chronic illnesses including insulin-dependent diabetes mellitus, Crohn's disease, ulcerative colitis, childhood cancers such as lymphoma and sudden infant death syndrome (*Dennis, 2002*).

D- Health benefits for the mother:-

Apart from a number of health and nutritional benefits for the infant (*Cahill and Wagner, 2002*), breastfeeding has several benefits for the mother. Breastfeeding minimizes postpartum bleeding and aids in rapid uterine involution (*AAP Reports, 1997; Heinig and Dewey, 1997*) Research shows that lactating women at six weeks postpartum had lower fasting glucose levels and improved glucose metabolism compared to nonlactating women (*Heinig and Dewey, 1997*). Mothers who breastfed experienced an increased fractional absorption of calcium compared to non lactating women and also a reduction in the incidence of osteoporosis (*Kalkwarf, 1996*), hip fractures and ovarian cancer (*Rosenblatt and Thomas, 1993*). Other health benefits of breastfeeding for the mother include lactation amenorrhea and maternal weight or fat loss (*AAP Reports, 1997; ADA Reports, 2001; Heinig and Dewey, 1997*). Mothers who continued to exclusively breastfeed their infants up to six months had significantly more weight loss (difference of 0.6 kg) compared to mothers who stopped exclusively breastfeeding their infants at four months (*Dewey et al., 2001*). A separate study revealed that women who formula-fed their infants retained more body weight compared to women who breastfed their infants (*Janney et al., 1997*). **E-Economic benefits**

Economic reports suggest that a “minimum of \$3.6 billion would be saved if the prevalence of exclusive breastfeeding increased from 64% in hospitals and 29% at six months to the rates recommended by the Surgeon General (75 and 50%, respectively)” (*Weimer,2001*). It has been estimated that if 50% of women in the U.S. would exclusively breastfeed their infants for six months, versus bottle feed, the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) would save \$6.5 million per month (*Bonuck et al., 2002*). According to some studies, breastfeeding is more convenient and less costly compared to formula feeding with lower formula and health care costs (*Ball and Wright, 1999; Pugh et al., 2002*). This is even more apparent in developing countries, where the major part of family income is spent on buying food for older children and adults (*ADA Reports, 2001*).

Factors influencing breastfeeding:

Maternal characteristics impact on breastfeeding like maternal age, socioeconomic status, ethnicity, smoking, maternal employment, maternal attitudes, confidence, and intention (*WHO., 2018*).

Health care professionals and breastfeeding: -

Studies have shown that health care professionals such as physicians have inadequate training in breastfeeding management (*ADA Reports, 1997*). Although health care professionals have been shown to positively influence breastfeeding women, research shows that they also provide women with inaccurate and/or inadequate breastfeeding information and recommendations. Strategies such as the BFHI, peer counseling, paternal support, and education of the mothers and health care professionals have been used to promote breastfeeding in the U.S. (*Martens, 2000; Philipp et al., 2001*). Breastfeeding promotion or intervention programs have focused on educating the mothers, family members, and employers about the benefits of supporting breastfeeding, not much attention has been paid to the health professionals influencing these target groups (*UNICEF.,2018*) .

Maternal Awareness/Knowledge toward breastfeeding : -

Mothers knowledge of child development and breastfeeding may directly affect the maternal sensitivity by influencing the mother's perception, interpretation and responsiveness to infants prompt stated that younger mothers compared to older mothers lack child development and breastfeeding knowledge and face difficulties in taking there possibilities of being a parent (*Fabes & Martin,2000*). On the other hand *Parks & Smeriglio(1983)* by measuring the parenting and breastfeeding knowledge on the first time infant mothers stated that the knowledge level was high and no difference from that of older mothers of comparable socio-economic status (SES).

It is believed that mothers will be more effective if they are knowledgeable about their own child and how to breastfeed. Mothers 'knowledge of breastfeeding can be affected by culture, family and generation which may influence mother's behavior of breastfeeding. Culture influence the way mothers think about their breastfeeding value (*Levine, et al., 2005*).

The Attitudes of Mothers toward breastfeeding: -

Studies indicated that mother's attitude and experience and culturally conditioned and indeed influence infant feeding decision and feeding duration ,that mothers breast feed longer if they desire to breast feed, if they intended to do it for a longer period of time, if they feel comfortable feeding in public, and also if they are not anxious about the process (*Allen LH, Pelto GH. PIP, 1985*).

Besides, maternal anxiety that breast milk alone might not provide sufficient nourishment is also found to force mothers engage in nonexclusive breast feeding as study in rural Jamaica reveals (*Chatman, et al, 2011*).

Complementary Infant Feeding

The current crisis is bringing additional challenges such as a deterioration of access to safe drinking water, poor sanitation, dysfunctional health services, insecurity, lack of food, and adoption of negative coping mechanisms (*UNICEF, 2019*). The right to adequate nutrition is a fundamental right for every child. Children who are fed enough of the right foods, in the right way, at the right time in their development, are more likely to survive, grow, develop and learn. They are better equipped to thrive, even when faced with disease, disaster or crisis. Between the ages of 6 and 23 months, the complementary feeding period, breastfeeding and access to a diverse range of nutritious foods provide children with the essential nutrients, vitamins, and minerals they need to develop to their full physical and cognitive potential, with benefits that endure well into adulthood (*Victora et al, 2010*).

The complementary feeding period is also a critical opportunity to prevent all forms of childhood malnutrition, including stunting, wasting, micronutrient deficiencies, overweight, obesity and diet-related non-communicable diseases. In addition, lifelong food preferences, tastes and habits are often established in childhood (*Aguayo et al., 2016*).

Yet in nearly every part of the world, families face economic, political, market, social or cultural barriers to providing nutritious, safe, affordable and sustainable diets to young children. These challenges are exacerbated in humanitarian situations, where access to nutritious food, clean drinking water, and good quality health services are limited, and the resources and capacities of caregivers already stretched. Young children and their caregivers are increasingly exposed to foods of low nutritive value, including commercial complementary foods and processed foods high in added sugar, salt and saturated and trans fats that are inexpensive, ubiquitous, and easy to feed to young children (*Relvas et al., 2019*).

Accelerating progress to improve the quality of complementary foods and feeding practices for young children is therefore critical (*UNICEF ., 2021*).

The quality of children's diets is more important before age 2 than at any other time in life (*Panjwani et al ., 2017*) . Appropriate complementary foods and feeding practices contribute to child survival, growth and development; they can also prevent micronutrient deficiencies, morbidity and obesity later in life (*Nikiema et al .,2017*). The complementary feeding period, from 6 to 23 months of age, is one of the most challenging times to meet children's nutrient demands. While children's stomachs can only hold a small amount of food, their nutrient needs reach a lifetime peak, leaving them vulnerable to growth faltering. In most countries, declines in height-for-age or length-for-age (HAZ or LAZ) occur primarily during the complementary feeding period (Figure 1)1, 8 due to the inadequate quality and/or quantity of first foods, poor feeding practices and increased rates of infection (*Sunguya et al .,2013*)

While first foods should be nutrient-rich, young children are often fed meals based mainly on staple cereals and grains, which are low in energy, protein, iron, zinc and other essential nutrients (*Tang, M., et al., 2014*). Unhygienic feeding practices also increase the risk of infections and diarrhea in young children, which, when combined with poor diets, can lead to growth failure (*Sanghvi, T., et al., 2017*) . The most recent global estimates of complementary feeding practices based on indicators established by WHO highlight a worrying situation (*WHO ., 2020*).

In low and middle income countries, half of all children are not receiving the minimum meal frequency (the minimum number of meals throughout the day needed to meet their nutrient needs); more than two thirds of children are not receiving the minimum dietary diversity (meals from a minimum number of food groups); and five out of six children are not receiving a minimum acceptable diet (both the minimum meal frequency and minimum dietary diversity needed to reduce the risk of malnutrition) (*Moss, C., et al.,2018*). Diet quality is associated with nutrition status: children who are fed at least a minimum acceptable diet are less likely to be stunted or underweight(*Kumar, N et al., 2018*).

Despite widespread consensus on the importance of good nutrition in early life, an alarming number of young children are suffering the consequences of poor diets. At least one in three children under 5 is either undernourished or overweight,

according to the State of the World's Children 2019: Children, food and nutrition. Stunting affects 149 million children under 5 worldwide, diminishing their physical and cognitive growth and development (*Dulal, B., et al ., 2017*) . Children affected by stunting often grow up to be stunted adults themselves, and stunted mothers are more likely to have stunted children. Wasting affects more than 49 million children under 5

globally, putting them at increased risk of infection and death (*Gera, T et al ., 2009*) Indeed, undernutrition is responsible for up to 45 percent of deaths in children under 5 and is a significant cause of morbidity in this age group (*UNICEF.,2020*) . At the same time, childhood overweight impacts at least 40 million children under 5, and is likely to continue rising in low- and middle-income countries, increasing the risk of non-communicable diseases in adulthood (*Lanou, H.B., et al., 2019*).

Poor child growth in the first 1,000 days from conception to age 2 predicts poorer survival 22, 25 and increases the risk of obesity and diet-related non-communicable diseases in adulthood. It also reduces cognitive and educational outcomes 26 and leads to income losses later in life (*Gera, T et al., 2009*). Stunted children may earn 20 per cent less than adults compared with their non-stunted peers and stunting can reduce a country's gross domestic product by up to 3 per cent. 29 Stunting and child growth deficits are difficult to reverse, while cognitive deficits may be permanent after two years (*Locks, L.M., et al.,2017*).

Improving children's diets is the foundation of sustainable and prosperous societies and paramount to achieving the 2030 Sustainable Development Goals (SDGs), including Goal 2 to improve nutrition and end all forms of malnutrition. Improving children's nutrition also supports the achievement of SDG targets on ending preventable childhood deaths and eliminating poverty, among others. Lastly, improving children's diets is central to addressing three of the six World Health Assembly (WHA) targets for reducing stunting, wasting and childhood overweight by 2025(*WHO.,2021*).

Definition and Importance of 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 (*WHO.,2014*).

If complementary foods are not introduced around the age of 6 months, or if they are given inappropriately, an infant's growth may falter. Ensuring that infants nutritional needs are met requires that complementary foods be:

- **timely** – meaning that they are introduced when the need for energy and nutrients exceeds what can be provided through exclusive breastfeeding;
- **adequate** – meaning that they provide sufficient energy, protein and micronutrients to meet a growing child's nutritional needs;
- **safe** – meaning that they are hygienically stored and prepared, and fed with clean hands using clean utensils and not bottles and teats;
- **properly fed** – meaning that they are given consistent with a child's signals of appetite and satiety, and that meal frequency and feeding are suitable for age. Caregivers should take active care in the feeding of infants by being responsive to the child's clues for hunger and also encouraging the child to

eat(<https://www.who.int/health-topics/complementary-feeding>)

Guiding Principles for Complementary Feeding

After 6 months of age, it becomes increasingly difficult for breastfed infants to meet their nutrient needs from human milk alone. Further more most infants are developmentally ready for other foods at about 6 months. In settings where environmental sanitation is very poor, waiting until even later than 6 months to introduce complementary foods might reduce exposure to food-borne diseases. However, because infants are beginning to actively explore their environment at this age, they will be exposed to microbial contaminants through soil and objects even if they are not given complementary foods. Thus, 6 months is the recommended appropriate age at which to introduce complementary foods (*WHO.,2001*).

During the period of complementary feeding, children are at high risk of undernutrition, complementary foods are often of inadequate nutritional quality, or they are given too early or too late, in too small amounts, or not frequently enough. Premature cessation or low frequency of breastfeeding also contributes to insufficient nutrient and energy intake in infants beyond 6 months of age (*hrimpton R, et al., 2001*). They provide guidance on desired feeding behaviors as well as on the amount, consistency, frequency, energy density and nutrient content of foods. The *Guiding principles* are explained in more detail in the paragraphs below.

Box 1:Guiding principles for complementary feeding of the breastfed child

1. Practice exclusive breastfeeding from birth to 6 months of age, and introduce complementary foods at 6 months of age (180 days) while continuing to breastfeed.
2. Continue frequent, on demand breastfeeding until 2 years of age or beyond.
3. Practice responsive feeding, applying the principles of psychosocial care.
4. Practice good hygiene and proper food handling.
5. Start at 6 months of age with small amounts of food and increase the quantity as the child gets older, while maintaining frequent breastfeeding.
6. Gradually increase food consistency and variety as the infant grows older, adapting to the infant's requirements and abilities.
7. Increase the number of times that the child is fed complementary foods as the child gets older.
8. Feed a variety of nutrient-rich foods to ensure that all nutrient needs are met.
9. Use fortified complementary foods or vitamin-mineral supplements for the infant, as needed
10. Increase fluid intake during illness, including more frequent breastfeeding, and encourage the child to eat soft, favorite foods. After illness, give food more often than usual and encourage the child to eat more (*WHO., 2009*).

GUIDING PRINCIPLE 1. Practice exclusive breastfeeding from birth to 6 months of age and introduce complementary foods at 6 months of age (180 days) while continuing to breastfeed

Exclusive breastfeeding for 6 months confers several benefits to the infant and the mother. Chief among these is the protective effect against gastrointestinal infections, which is observed not only in developing but also in industrialized countries. According to the WHO growth standards, children who are exclusively breastfed have a more rapid growth in the first 6 months of life than other infants (*WHO.,2008*).

By the age of 6 months, a baby has usually at least doubled his or her birth weight, and is becoming more active. Exclusive breastfeeding is no longer sufficient to meet all energy and nutrient needs by itself, and complementary foods should be introduced to make up the difference. At about 6 months of age, an infant is also developmentally ready for other foods (*Naylor et al .,2001*). The digestive system is mature enough to digest the starch, protein and fat in a non-milk diet. Very young infants push foods out with their tongue, but by between 6 and 9 months' infants can receive and hold semisolid food in their mouths more easily.

GUIDING PRINCIPLE 2. Continue frequent on-demand breastfeeding until 2 years of age or beyond

Breastfeeding should continue with complementary feeding up to 2 years of age or beyond, and it should be on demand, as often as the child wants.

Breast milk can provide one half or more of a child's energy needs between 6 and 12 months of age, and one third of energy needs and other high quality nutrients between 12 and 24 months (*Dewey.,2001*). Breast milk continues to provide higher quality nutrients than complementary foods, and also protective factors. Breast milk is a critical source of energy and nutrients during illness, and reduces mortality among children who are malnourished (*Brown KH, et al.,1990*). Breastfeeding reduces the risk of a number of acute and chronic diseases. Children tend to breastfeed less often when complementary foods are introduced, so breastfeeding needs to be actively encouraged to sustain breast-milk intake.

GUIDING PRINCIPLE 3. Practise responsive feeding applying the principles of psychosocial care

Optimal complementary feeding depends not only on what is fed but also on how, when, where and by whom a child is fed. Behavioral studies have revealed that a casual style of feeding predominates in some populations. Young children are left to feed themselves, and encouragement to eat is rarely observed (*Pelto G et al .,2003*).

GUIDING PRINCIPLE 4. Practice good hygiene and proper food handling

Microbial contamination of complementary foods is a major cause of diarrhoeal disease, which is particularly common in children 6 to 12 months old. Safe preparation and storage of complementary foods can prevent contamination and reduce the risk of diarrhea. The use of bottles with teats to feed liquids is more likely to result in transmission of infection than the use of cups, and should be avoided (*Black RE et al .,1989*).

GUIDING PRINCIPLE 5. Start at 6 months of age with small amounts of food and increase the quantity as the child gets older, while maintaining frequent breastfeeding

The overall quantity of food is usually measured for convenience according to the amount of energy – that is, the number of kilocalories (kcal) – that a child needs. Other nutrients are equally important, and are either part of, or must be added to, the staple food. Complementary foods should have a greater energy density than breast milk, that is, at least 0.8 kcal per gram. When complementary food is introduced, a

child tends to breastfeed less often, and his or her intake of breast milk decreases
(*Drewett R, et al.,1989*)

GUIDING PRINCIPLE 6. Gradually increase food consistency and variety as the infant grows older, adapting to the infant's requirements and abilities

The most suitable consistency for an infant's or young child's food depends on age and neuromuscular development. Beginning at 6 months, an infant can eat pureed, mashed or semi-solid foods. By 8 months most infants can also eat finger foods. By 12 months, most children can eat the same types of foods as consumed by the rest of the family (*WHO/UNICEF., 1998*).

GUIDING PRINCIPLE 7. Increase the number of times that the child is fed complementary foods as the child gets older

As a child gets older and needs a larger total quantity of food each day, the food needs to be divided into a larger number of meals.

The number of meals that an infant or young child needs in a day depends on:

- how much energy the child needs to cover the energy gap. The more food a child needs each day, the more meals are needed to ensure that he or she gets enough.
- the amount that a child can eat at one meal. This depends on the capacity or size of the child's stomach, which is usually 30 ml per kg of the child's body weight. A child who weighs 8 kg will have a stomach capacity of 240 ml, about one large cupful, and cannot be expected to eat more than that at one meal.
- the energy density of the food offered. The energy density of complementary foods should be more than breast milk, that is, at least 0.8 kcal per gram. If the energy density of food is lower, a larger volume of food is needed to fill the gap,

which may need to be divided into more meals (*WHO.,2005*).

GUIDING PRINCIPLE 8. Feed a variety of nutrient-rich foods to ensure that all nutrient needs are met

Complementary foods should provide sufficient energy, protein and micronutrients to cover a child's energy and nutrient gaps, so that together with breast milk, they meet all his or her needs.

A variety of other foods should be added to the staple every day to provide other nutrients. These include:

- *Foods from animals or fish* are good sources of protein, iron and zinc. Liver also provides vitamin A and folate. Egg yolk is a good source of protein and vitamin A, but not of iron. A child needs the solid part of these foods, not just the watery sauce.
- Dairy products, such as milk, cheese and yoghurt, are useful sources of calcium, protein, energy and B vitamins.
- Pulses – peas, beans, lentils, peanuts, and soybeans are good sources of protein, and some iron. Eating sources of vitamin C (for example, tomatoes, citrus and other fruits, and green leafy vegetables) at the same time helps iron absorption.
- Orange-colored fruits and vegetables such as carrot, pumpkin, mango and papaya, and dark-green leaves such as spinach, are rich in carotene, from which vitamin A is made, and also vitamin C.
- Fats and oils are concentrated sources of energy, and of certain essential fats that children need to grow (*WHO.,2005*) .

GUIDING PRINCIPLE 9. Use fortified complementary foods or vitamin-mineral supplements for the infant as needed

Unfortified complementary foods that are predominantly plant-based generally provide insufficient amounts of certain key nutrients (particularly iron, zinc and vitamin B6) to meet recommended nutrient intakes during complementary feeding. Inclusion of animal-source foods can meet the gap in some cases, but this increases cost and may not be practical for the lowest-income groups. Furthermore, the amounts of animal-source foods that can feasibly be consumed by infants (e.g. at 6–12 months) are generally insufficient to meet the gap in iron. The difficulty in meeting the needs for these nutrients is not unique to developing countries (*Brown K et al.,2001*) .

Average iron intakes in infants in industrialized countries would fall well short of recommended intake if iron-fortified products were not widely available. Therefore, in settings where little or no animal-source foods are available to many families, ironfortified complementary foods or foods fortified at the point of consumption with a multivitamin powder or lipid-based nutrient supplement may be necessary(*WHO.,2005*).

GUIDING PRINCIPLE 10. Increase fluid intake during illness, including more frequent breastfeeding, and encourage the child to eat soft, favorite foods. After illness, give food more often than usual and encourage the child to eat more

During an illness, the need for fluid often increases, so a child should be offered and encouraged to take more, and breastfeeding on demand should continue. A child's appetite for food often decreases, while the desire to breastfeed increases, and breast milk may become the main source of both fluid and nutrients (*WHO.,2002*).

A child should also be encouraged to eat some complementary food to maintain nutrient intake and enhance recovery. Intake is usually better if the child is offered his or her favorite foods, and if the foods are soft and appetizing. The amount eaten at any one time is likely to be less than usual, so the caregiver may need to give more frequent, smaller meals (*UNICEF.WHO.,2004*).

Recommendations for micronutrient supplementation

Micronutrients are essential for growth, development and prevention of illness in young children, micronutrient supplementation can be an effective intervention in some situations. Recommendations are summarized below.

Vitamin A

WHO and UNICEF recommend universal supplementation with vitamin A as a priority in children aged 6–59 months in countries with a high risk of deficiency. In these countries, a high dose of vitamin A should also be given to children with measles, diarrhea, respiratory disease, chickenpox, other severe infections, or who live in the vicinity of children with vitamin A deficiency (*WHO/UNICEF.,1997*)

Iron

As a rule, fortified foods should be preferred to iron supplements for children during the complementary feeding period. Caution should be exercised with iron supplementation in settings where the prevalence of malaria and other infectious diseases is high. In malaria-endemic areas, universal iron supplementation is not recommended. If iron supplements are used, they should not be given to children who have sufficient iron stores as the risks of severe adverse events appear to be greater in those children. Prevention and management of anaemia in such areas requires a screening system to identify iron-deficient children, and the availability of and accessibility to appropriate anti-malarial and other anti-infective treatments (*WHO.,2006*).

Iodine

In 1994, WHO and UNICEF recommended universal salt iodization (USI) as a safe, cost-effective and sustainable strategy to ensure sufficient intake of iodine by all individuals. However, in areas with severe iodine deficiency, vulnerable groups – pregnant and lactating women and children less than 2 years – may not be adequately covered when USI is not fully implemented, and iodine supplementation may be necessary. The WHO/UNICEF Joint Statement on reaching optimal iodine nutrition in pregnant and lactating women and young children provides guidance for the categorization of countries and subsequent planning of an adequate response (*WHO/UNICEF.,2007*).

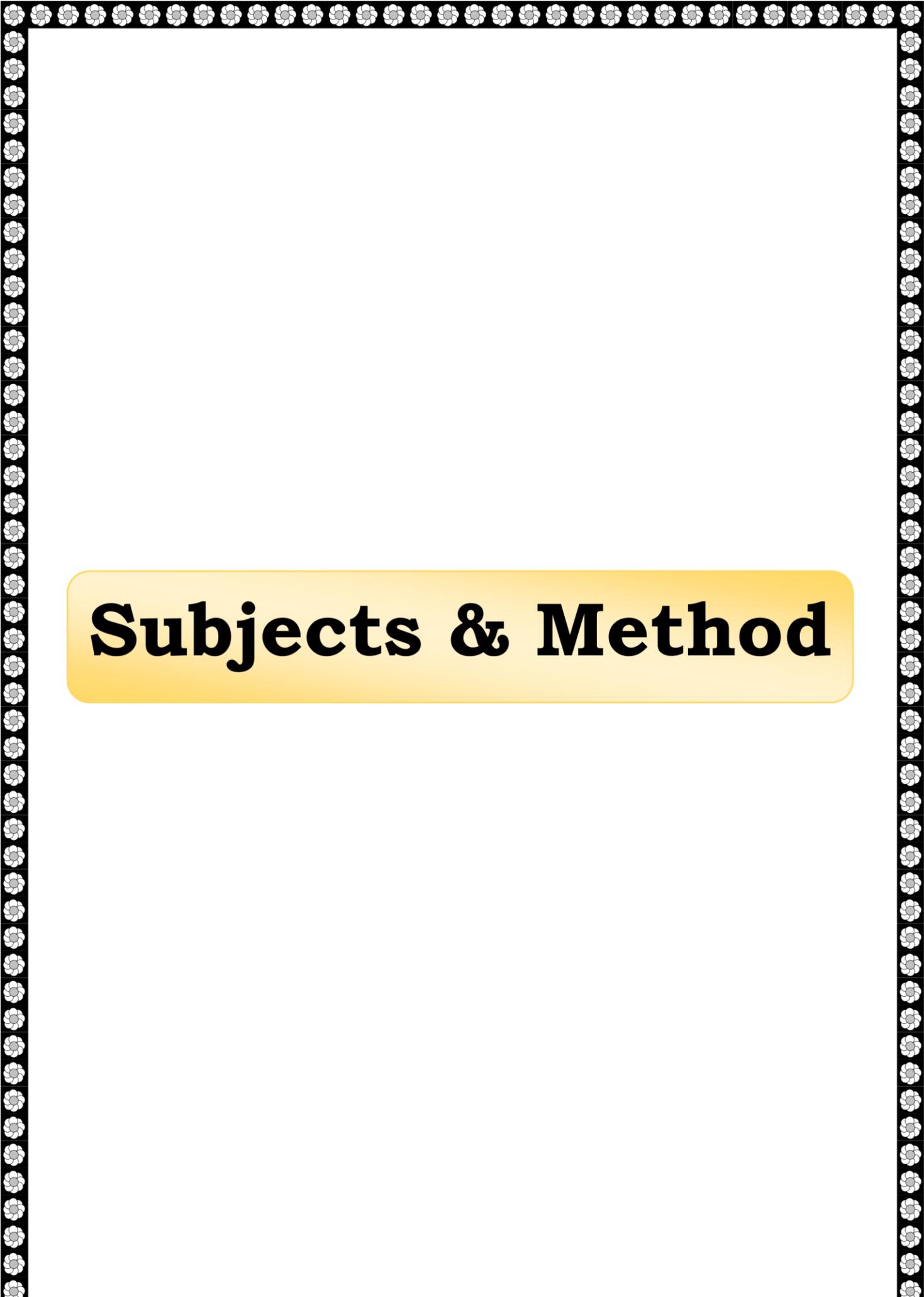
Zinc

Zinc supplementation is recommended as adjunct therapy in the management of diarrhea. Zinc (20 mg/day) should be given to all children with diarrhoea for 10–14 days. In infants below 6 months of age, the dose of zinc should be 10 mg/day (*WHO/UNICEF.,2004*).

Complementary feeding in Yemen:

Yemen has been experiencing serious man-made disaster since September 2014, resulting in political instability, economic decline, food insecurity and finally high malnutrition rates. According to *UNOCHA (2019)*, this crisis led to more than 8 million Yemeni in urgent need, which include 2 million children under 5 years old and 2 million Pregnant and Lactating Women (PLW). In emergency situation, infants and young children with acute malnutrition is considered as the most vulnerable groups. Inappropriate IYCF in emergency can be a life-threatening aspect due to the impact on the occurrence of both disease and undernutrition which lead to death. IYCFP also has an impact on maternal health. The appropriate practice contributes to protect children's nutrition and save life (*Sphere Association 2018*). Therefore, there is a need to provide support to ensure optimal nutrition for IYCF in emergencies. The government of Yemen had developed national policy regarding IYCF. Breastmilk Substitute (BMS) policies had been prepared based on WHO and UNICEF 1981 International Code of Marketing of BMS for children 0-23 months and had run “breastfeeding awareness campaign” since 2010 (*UNICEF 2014*). However,

inappropriate practice has been reported before the conflict with very low initiate breastfeeding (10.3%)



Subjects & Method

Chapter Three

Methodology & Materials

Study design

A cross sectional study will be conducted to assess the mothers knowledge, attitude, and practice of breastfeeding and complementary feeding.

Study period

This study will be conducted from 10thJanuary2023 to 10thMarch 2023.

Study location

Al-Sabeen Maternal Hospital in Capital Sana'a City, Yemen.

Study population

The study population consisted of mothers Al-Sabeen Maternal Hospital and mothers having a child of less than two years during the study period.

Inclusion and Exclusion Criteria

Inclusion Criteria

- Mothers with children aged 1 day to 24 months attending immunization.
- Breastfeeding mothers who gave consent to participate in the study

Exclusion criteria

- Mothers other than the mother were excluded from the study.
- Mothers who declined to sign the consent.
- Mothers who have serious illness or mentally ill.
- Mothers with children with other co-morbidities-HIV, cardiac, malignancies, chronic renal disease and chronic diseases.

Sample :

A convenience sample of all mothers who had children less than 23 month which attendance to alsabaeen hospital about 337 mothers were included in the study.

Sampling Methods

Participants were chosen based on non-probability purposive sampling technique (convenient sample) because using this, the researcher could reach the target easily. Mothers with attending AL-Sabaeen hospital and with children less than 2 years old age were targeted so that they can recall their exclusive breastfeeding practice and the early practices that supported the success of breastfeeding for the first six months of life and age at weaning, and AL-Sabaeen hospital special in maternal and child.

Study variability

The variables of this study were divided into independent and dependent variables.

Dependent Variable

Knowledge, Attitude, and Practices of mothers toward breastfeeding and complementary feeding.

Independent variable

This study identified sociodemographic variables (e.g., age, gender, education levels etc.) general population.

Data collection technique and tools

Data Collection technique:

A structured questionnaire used to collect data through face-to-face interviews from participants. Nine medical students collected data collected the data. The information collected included socio-economic characteristics, knowledge, attitude, & practices variables towards breastfeeding and complementary feeding.

Measurement Tools

All the mothers in the selected study approached by researcher team. Data on sociodemographic characteristics collected using the questionnaire.

Tools of the study: - The following tools were used to collect data for the study:-

Tool 1: A- Structured questionnaire sheet was developed by researcher to collect information from the participants included two parts:-

Part 1: Sociodemographic characteristics of mothers It included as age, academic qualification, department work, sex, marital status, income ..etc.

Part2: Knowledge of nurses about infection control for wound care:

This part used to assess knowledge of mothers about breastfeeding and complementary feeding consist of 17 question.

Scoring System:

The question form was multiple choice items, to measure knowledge, the score was given 1 grade for correct answer, 0 grade for incorrect answer. After summing up the total knowledge scores of respondents on the basis of percentage, the knowledge level was classified into three levels as following: poor knowledge if the score is less than 50%, fair knowledge if score is 50%- 70%, and good knowledge if score is more than 70% (Abd Elzaher et al .,2014).

Tool II: Likert scale.

It was designed to assess mother's attitudes regarding breastfeeding and complementary feeding , It had eleven items and each item has three responses ranging from agree to disagree .

Scoring System:

The responses "agree", "uncertain " and "disagree" were respectively scored 3.2 and 1 respectively. The scoring was reversed for negative statements. Attitude was considered positive if the score was $\geq 60\%$ and negative attitude if the score $< 60\%$

Tool (III): Reporting practice

Reporting checklist was developed by researcher to assess reported practice of mother's breastfeeding and complementary feeding .

Scoring System:

The question form was multiple choice items, the total score is classified into poor practice if the score is less than 50%, fair practice if score is 50%- 70%, and good practice if score is more than 70% .

Validity and Reliability of Measurement Tools:

The content validity of the questionnaire assessed by the supervisory committee, which includes a community medicine expert in 21 September University, as well as another expert of public health in other university. The questionnaire initially designed in English, translated in Arabic by senior project team members and then back-translated to English by an independent person to check for inconsistencies.

Similar conditions for data collection ensured for each participant. The nature and purpose of the research regularly communicated. Participants selected that similar with regard to extraneous factors.

Pilot study

A pilot study was carried out before starting of data collection on 10% of mothers, who included in the sample. The purpose pilot was to test the clarity of the tools and estimate the required time to fill the questionnaires.

Data processing and analysis

Data collection

A structured questionnaire used to collect data through face-to-face interviews. Nine medical students collected the data. The information collected included socioeconomic factors, knowledge variables, attitude factors, and practice factors. The interview process taking ~10–15 min to complete. The data collection tool initially

prepared in English version followed by translation to local Arabic language. Consistency of content, clarity, and appropriate meaning between the two versions will be maintained through back-translation of the questionnaire to the original version. Additionally, the practicability, validity, and interpretability of answers for the respective questions will be confirmed by performing a pre-test in 10% of the targeted sample size. Based on this pre-test study, the format and wording of questions corrected and refined.

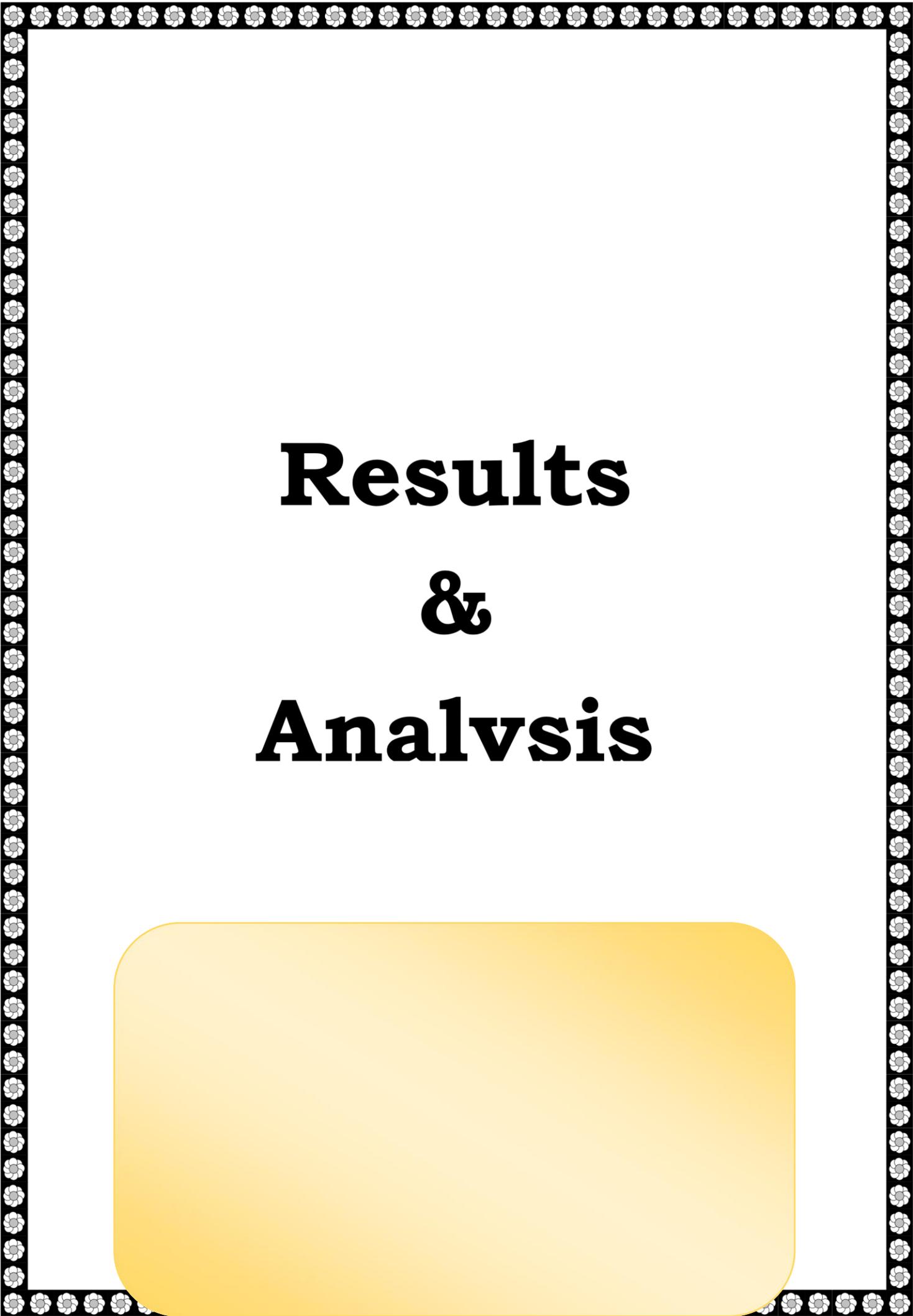
Data analysis

Statistical analyses performed using the IBM Statistical Program for Social Sciences (SPSS) version 26. The study population's characteristics summarized using means with SDs for the continuous variables and percentages for the categorical variables. Confidence intervals also reported for inference. Univariate analysis conducted to determine the independent effect of each predictor on outcomes but using Crude odds ratios (OR) with 95% CI and $p < 0.05$. All variables are initially included in the analyses. The rationale for using $P < 0.25$ because more traditional levels such as 0.05 can fail in identifying variables known to be important especially in medical research. Possible associated factors in the multivariable analysis model with AOR will be examined for signs of collinearity. This demonstrated in one of two ways: either by alterations in the direction of the effect between the univariate and multivariable analysis; or improbable standard mistakes for a given variable. Two-sided test with level of significance at $\alpha = 0.05$ will be used.

Independent samples T-tests will be applied to compare male and female groups with each domain's attitudes and practices. One-way ANOVA tests conducted to assess the differences in attitudes and practices among the other demographics data.

Ethical Considerations:

Ethical clearance obtained from 21 September University Human Resources Ethics Committee. A written permission will be given to Al-Sabeen hospital, Sana'a, to carry out this research there. Field enumerators will be explained the purpose of the study to the and sought their Verbal consent before proceeding with the interviews. All data obtained confidential and will not be used for purposes other than scientific research.



Results & Analysis

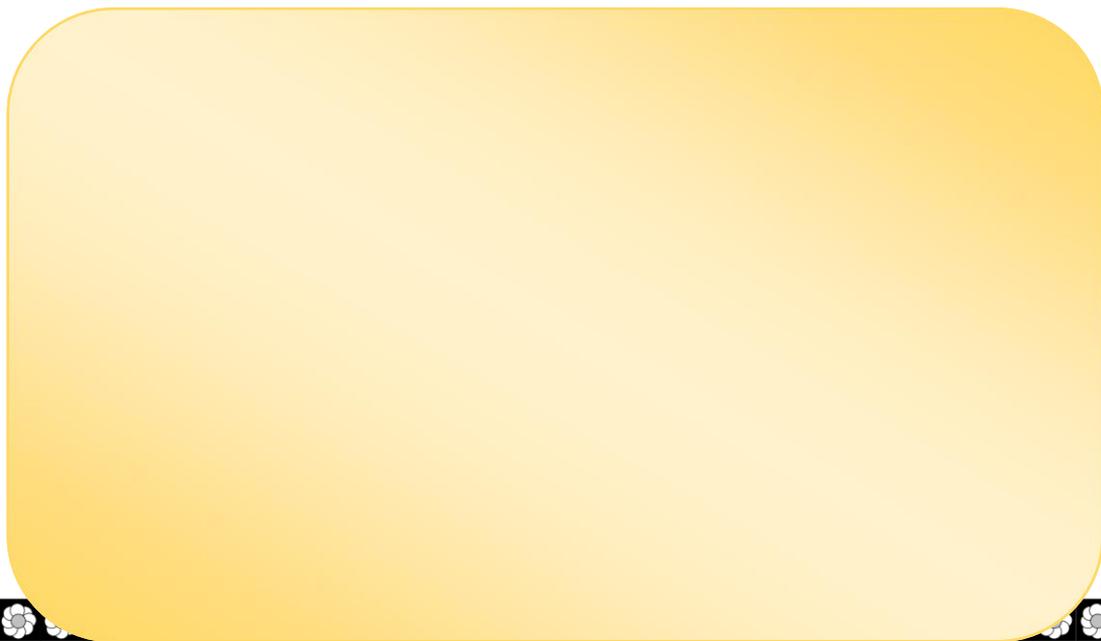


Table (1): Distribution of Mothers according to demographic data (n=337).

Items	No. (200)	%
Place of Residence		
Urban	269	79.8%
Rural	78	23.2%
Age of Mother		
≤ 20	43	12.8
20 - ≤ 30	79	23.4
30 - ≤ 40	139	41.3
≥ 40	76	22.5
Level Education for Mother		
Literacy	48	14.2%
Read & Write	54	16 %
Primary School	89	26.4%
Secondary School	104	30.9%
Diploma/Uni. and above	42	12.5%
Husband educational level		
Literacy	32	9.5%
Read & Write	84	24.9%
Primary School	39	11.6%
Secondary School	112	33.2%
Diploma/Uni. and above	70	20.8%
Marital Status for Mother		
Married	257	76.3%
Widowed	33	9.8%
Divorce	43	12.8%
No answer	4	1.2%
Mother's Occupation		
Not working/ Housewife	241	60.5%
Government working	69	27.5%
Private working	16	8%
Student	8	4%
Husband occupational status		
Not working	79	23.5%
Government working	92	27.3%
Private working	153	45.4%

Student	13	3.8 %
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Table (1) shows that the distribution of mothers according to demographic data. More than two thirds (79.8%) of mothers live in urban, more than one third (41.3 %) of mothers were between 30 - \leq 40 years, and (30.9%,33.2%) of mothers and fathers respectively were secondary school, while (60.5%) of mothers were house wives and (45.4%) of fathers have private work.

Continuous Distribution of Mothers according to demographic data (n=337).

Items	No. (200)	%
Inter-pregnancy interval between previous and current pregnancies		
\leq 12 months	69	20.5%
12 - \leq 24 months	213	63.2%
24 - \leq 36 months	28	8.3%
\geq 36 months	27	8.0%
No. of children under 5 years		
1	46	13.7%
2	61	18.1%
3	189	33.9%
4	41	12.2%
Total family income per month (YR)		
\leq 50000	189	56.1%
50000 - 100000	123	36.5%
\geq 100000	25	7.4%
Household size:		
1 - 2	32	9.5%
2 - 3	84	24.9%
3 - 4	39	11.6%
>4	112	33.2%
Socioeconomic status		
Low	251	74.5%
Moderate	71	21.1%
High	15	4.4%

Current child age in month		
1 - \leq 12 Months	193	57.3%
12 - \leq 24 Months	98	29.0 %
24 - \leq 36 Months	33	9.8%
\geq 36	13	3.9%
Gestational Age at birth		
low parity (one or two births)	103	30.6%
Multiparty (three or four births)	124	36.8%
Grand multiparty (five or more births).	110	32.6%
Infant's Birth weight		
1500 - \leq 2500 gm	268	79.5%
2500 - \leq 3500 gm	40	11.9%
\geq 3500 gm	29	8.6%
Type of delivery		
Normal Vagina	179	53.1%
Caesarean Section	158	46.9%
Duration of breastfeeding		
0 - \leq 3 Months	216	64.1%
3 - \leq 6 Months	87	25.8%
\geq 7 Months	34	10.1%

Cont. Table (1) shows that the distribution according to No. of children under 5 years around one thirds (33.9%) were 3 years, also around three quarters (74.5%) of mothers were low income. As regarding type of delivery more than half (53.1%) of mothers were normal vagina ,while (46.9%) of them were Caesarean Section.

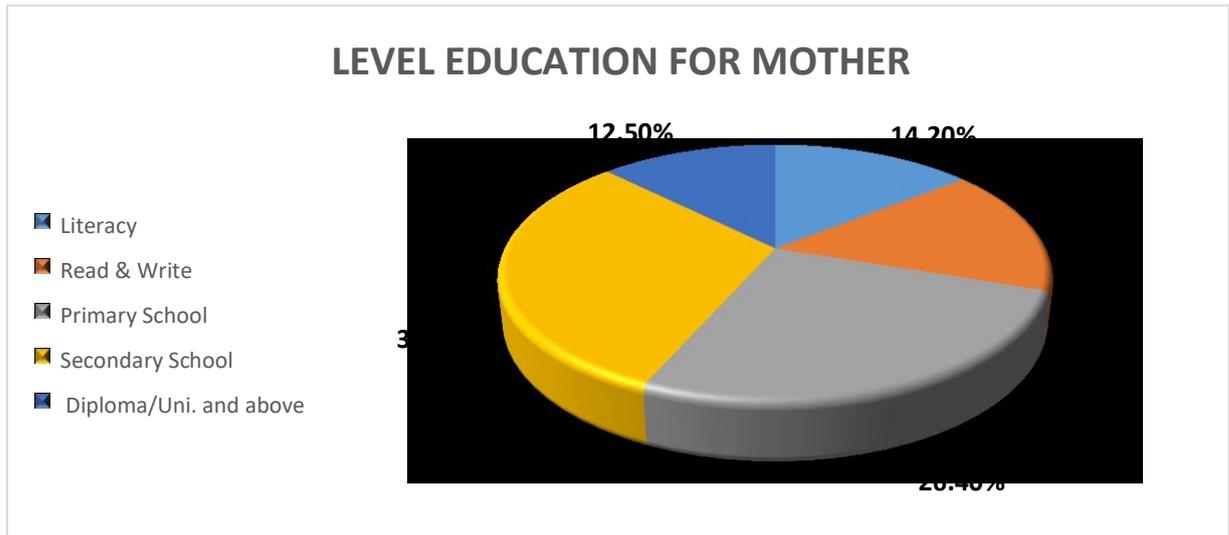


Figure (1): Distribution of mothers according to level of education (n=337).

Regarding Level Education for Mother in figure one more than one quarter of them were secondary school ,while 12.5% had literacy.

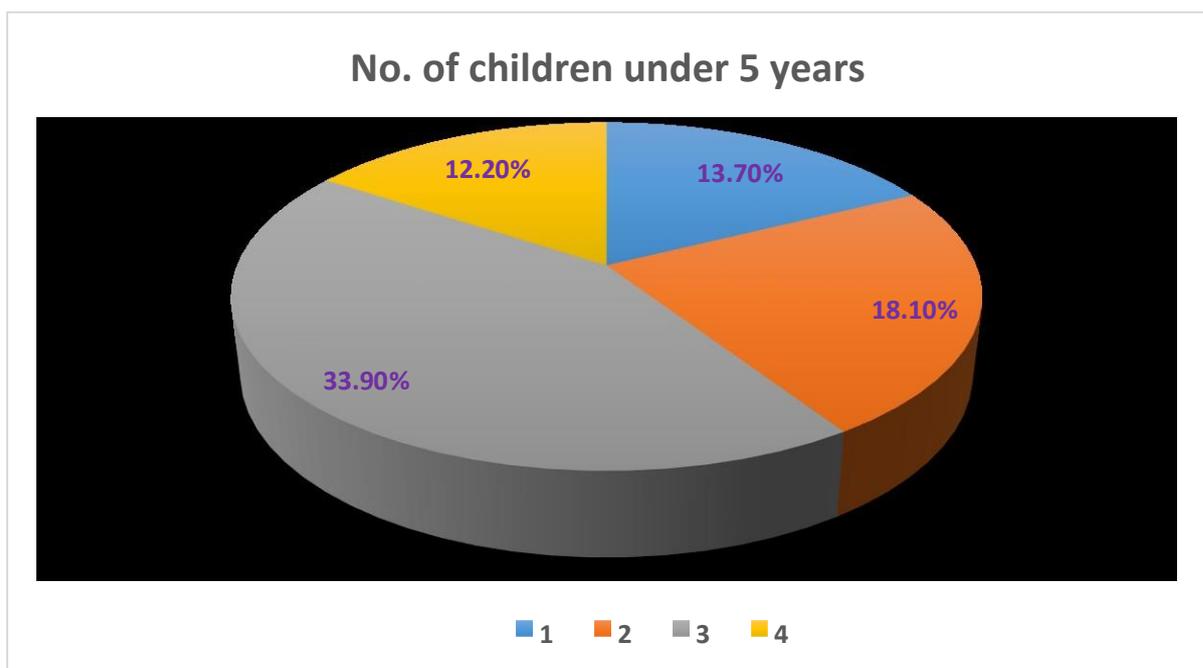


Figure (2): Distribution according to No. of children under 5 years (n=337).

Regarding to number of children under 5 years in this figure around one third of them had 3 children, while 12.2% of them had 4 children.

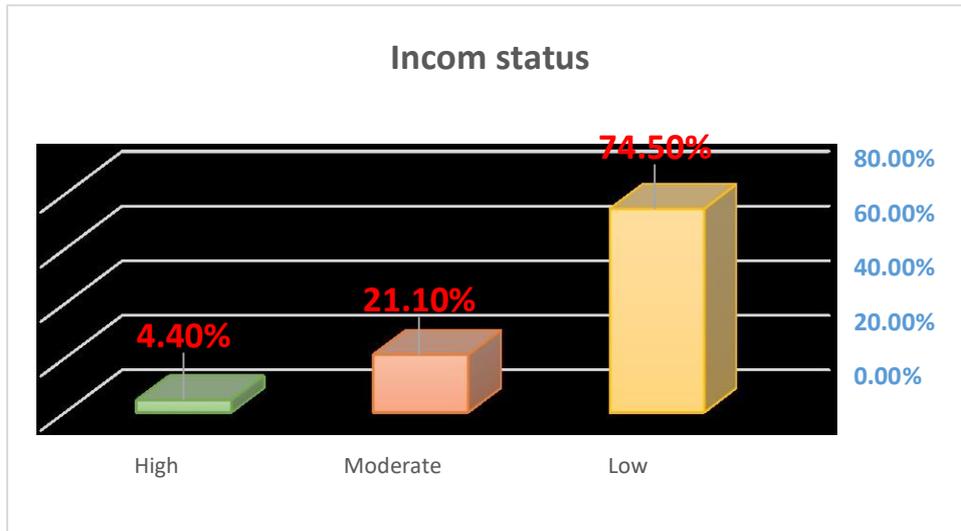


Figure (3): Distribution according to income status (n=337).

This figure shows that; more than of two thirds of mothers have low income (74.5%).

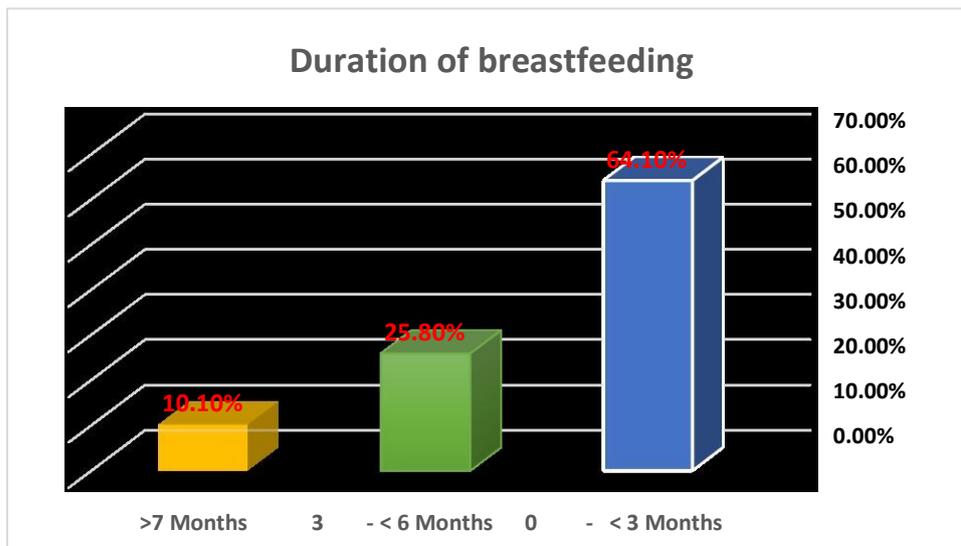


Figure (4): Distribution according to duration of breastfeeding (n=337).

This figure shows that; more than half of mothers practiced the breastfeeding less than 3 months.

(2): Distribution of mother's knowledge toward breastfeeding and complementary feeding in the capital Sana'a, Yemen (n=337).

Statements		YES		No		Don't know	
		Freq.	(%)	Freq	(%)	Freq	(%)
Knowledge Items N= 337							
1.	Is that important to spacing between pregnancies?	111	32.9%	151	44.8%	75	22.3%
2.	Have you ever got any Health education how to feed your child?	79	23.4%	198	58.8%	60	17.8%
3.	Breast milk has all the nutrients that the baby needs.	98	29.1%	216	64.1%	23	6.8%
4.	You know what is the first fluid a baby should receive.	145	43%	165	49%	27	8%
5.	Colostrum in breast milk works as a safe vaccine for baby.	116	34.4%	183	54.3%	110	32.6%
6.	You know what does exclusive breastfeeding mean.	105	31.2%	210	62.3%	22	6.5%
7.	Breast milk is easier to absorb and digest than baby formula.	216	64.1%	101	30%	20	5.9%
8.	Breast milk alone is needed for the first six months of life.	195	57.9%	105	31.1%	37	11%
9.	Breastfeeding can be continued for up to 2 years.	285	84.6%	25	7.4%	27	8%
10.	Breastfeeding mothers should take healthy food to improve breast milk supply and secretion.	315	93.5%	20	5.9%	2	0.6%
11.	Baby should be breastfed every 2 hours.	85	25.2%	230	68.2%	22	6.6%
12.	Breastfeeding helps bonding of mother and child.	299	88.7%	31	9.2%	7	2.1%
13.	Breastfeeding decreases diarrhea.	185	54.9%	150	44.5%	2	0.6%
14.	Breastfeeding protects the mother against breast cancer.	127	37.7%	150	44.5%	60	17.8%
15.	Breastfeeding is a good family planning method.	137	40.7%	163	48.3%	37	11%

Table

16.	Once solid foods is introduced, breastfeeding should be stopped.	177	52.5%	150	44.5%	10	3%
17.	Do you know when to start complementary feeding to your child?	122	36.2%	190	36.4%	20	5.9%

Table (4): This table show distribution of mother’s knowledge regarding breastfeeding and complementary feeding that more than half of them (58.8%) were answered by no about if they had got any Health education how to feed your child , and about (64.1%) of them were answered by yes regarding to breast milk is easier to absorb and digest than baby formula. While (68.2%) of them were answered by no regarding to should be breastfed for baby every 2 hours, also in this table show that more than one third (36.2%) of mother answered by yes about know when to start complementary feeding to child.

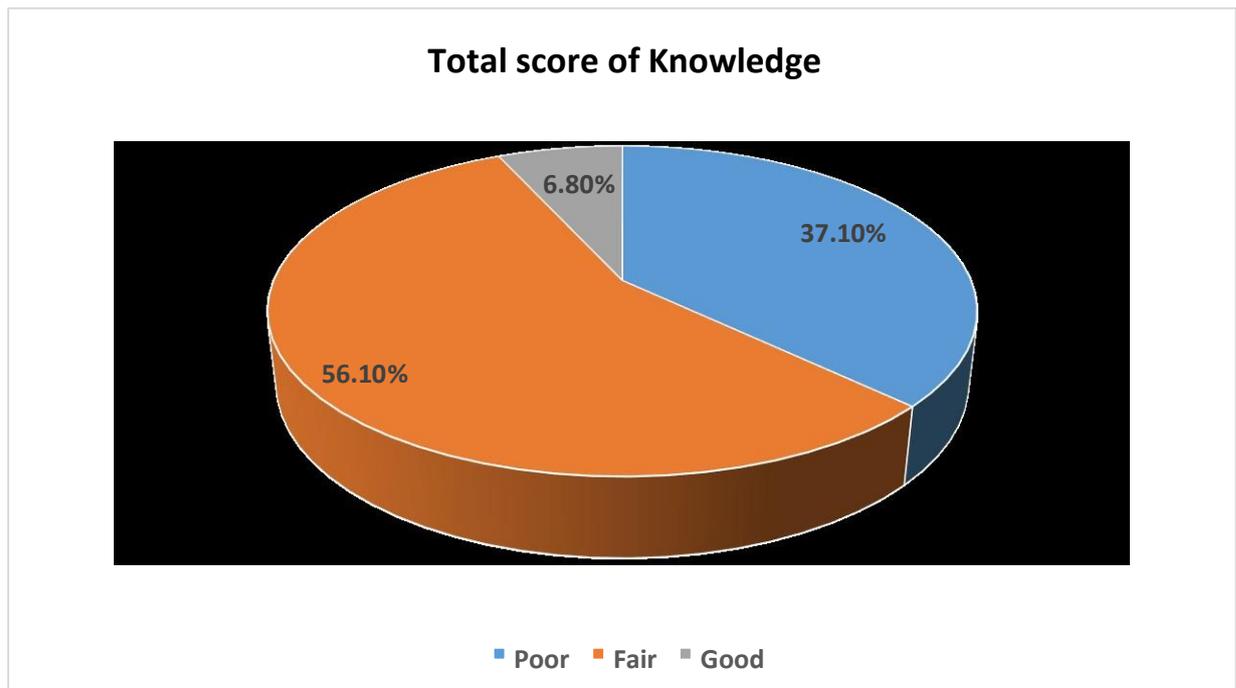


Figure (5): Overall mother’s knowledge level toward breastfeeding and complementary feeding in the capital Sana'a, Yemen (n=337).

This figure illustrates that more than one third (37.1%) of the mothers had poor knowledge about breastfeeding and complementary feeding and more than half (56.1%) of them had fair knowledge while (6.8%) of them had good knowledge.

(3): Distribution of mother’s attitude toward breastfeeding and complementary feeding in the capital Sana'a, Yemen (n=337).

Attitude Statements		Agree		Neutral		Disagree	
		Freq.	(%)	Freq.	(%)	Freq.	(%)
1.	Do you think is good it to exclusively breastfeed you baby for six months?	134	39.8%	14	4.2%	189	56.1%
2.	Is it difficult to breastfeed your baby exclusively for six months?	230	68.2	34	10.1%	73	21.7%
3.	Do you think you should breastfeed your baby on demand?	151	44.8%	61	18.1%	125	37.1%
4.	Bottle feeding is the option if the baby refuses to suckle on the breast.	242	71.8%	65	19.3%	30	8.9%
5.	Women should not breastfeed in public places (such as restaurants, markets, etc.).	228	67.7%	65	19.3%	44	13%
6.	The benefits of breastfeeding last only for a shorter time.	123	36.5%	178	52.8%	36	10.7%
7.	Breastfeeding takes a lot of time.	112	33.2%	95	28.2%	130	38.6%
8.	You believe that you can make your child strong and healthy?	132	39.2%	84	24.9%	121	35.9%
9.	It's good to give different types of food to your child each day?	247	73.3%	39	11.6%	51	15.2%
10.	It's difficult for you to give different types of food to your child each day?	45	13.4%	89	26.4%	203	60.2%

Table

11.	You want to provide appropriate nutrition to your child?	198	58.8%	37	11%	102	30.2%
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Table (3): This table Shows that **(39.8%)** of mothers agree with exclusively breastfeed for baby for six months is good while **(56.1%)** of them disagree, more than one third of the mothers **(68.2%)** think that breastfeed for baby exclusively for six months is difficult, while **(21.7%)** of them disagree. As regarding Bottle feeding is the option if the baby refuses to suckle on the breast, most of the mothers **(71.8%)** agree but about **(8.9%)** disagree. Also in this table show that more than two third **(73.3%)** of mother agree regarding that to give different types of food to child each day it is difficult while **(15.2%)** of them disagree.

Regarding that provide appropriate nutrition to child more than half **(58.8%)** of mother agree, while **(30.2%)** of them disagree.

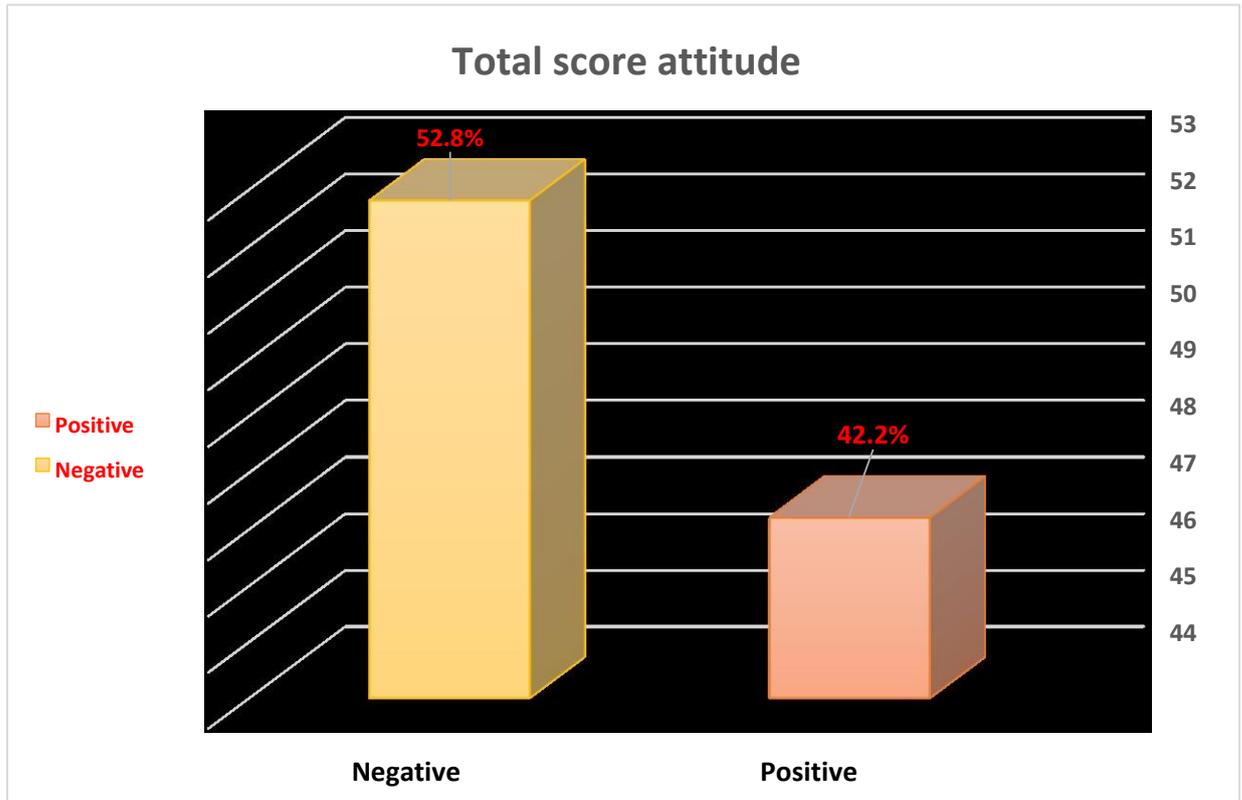


Figure (6): Overall mother's attitude level toward breastfeeding and complementary feeding in the capital Sana'a, Yemen (n=337). This figure illustrates that more than one third (52.8%) of the mothers had negative attitude about breastfeeding and complementary feeding while (42.2%) of them had positive attitude.

(4): Distribution of mother's practice toward breastfeeding and complementary feeding in the capital Sana'a, Yemen (n=337).

Practice Statements		Done		Not Done		Don't know	
		Freq.	(%)	Freq.	(%)	Freq.	(%)
1.	Breastfeeding initiation was done within an hour of birth.	98	29.1%	211	62.6%	38	11.3%
2.	The first feeding given to the baby was breast milk.	126	37.4%	150	44.5%	61	18.1%
3.	Colostrum was given to your baby.	119	35.3%	179	53.1%	39	11.6%

Table

4.	The baby was given other milk apart from breast milk(before 6 months).	232	68.8%	86	25.5%	19	5.2%
5.	The baby was given other foods apart from breast milk.(before 6 months)	212	62.9%	91	27 %	34	10.1%
6.	Are you still breastfeeding your child.	132	39.2%	112	33.2%	93	27.6%
7.	Have you started complementary feeding for your child at age 6 month?	73	21.7%	165	48.9%	99	29.4%
8.	Do you continued breastfeeding for 2 years?	64	18.9%	217	64.4%	56	16.6%
9.	Have you washed your hands & Utensils' before preparation of foods for your child?	107	31.8%	191	56.7%	39	11.6%
10.	Do you feed your child multiple times a day?	276	81.9%	52	15.4%	9	2.7%
11.	Do you prepare your child's food from variety food substances?	175	51.9%	143	42.4%	19	5.6%

Table (4): This table show more than half of mothers (**62.6%**) said the breastfeeding initiation was not done within an hour of birth, while (**29.1%**) of them done. Regarding about given to baby Colostrum more one third (**35.3%**) of mothers done this practice, while more than half (**53.1%**) of them not done. Regarding continued breastfeeding for 2 years around one fifth (**18.9%**) of mothers done this practice ,while around two thirds (**64.4 %**) answered not done .

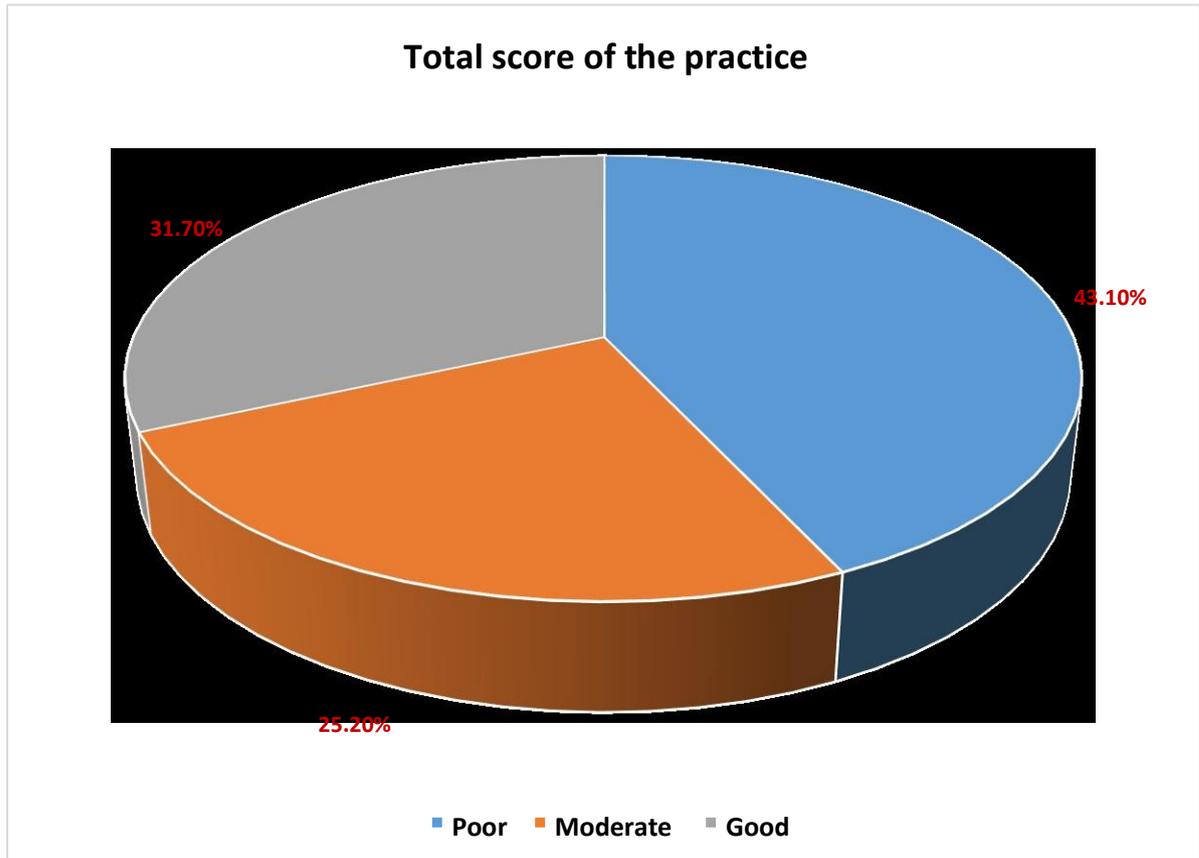


Figure (7): Overall mother's practice level toward breastfeeding and complementary feeding in the capital Sana'a, Yemen (n=337).

This figure illustrates that more than two third (43.1%) of the mothers had poor practice about breastfeeding and complementary feeding and one quarter (25.2%) of them had moderate practice while (31.7%) of them had good practice.

Table

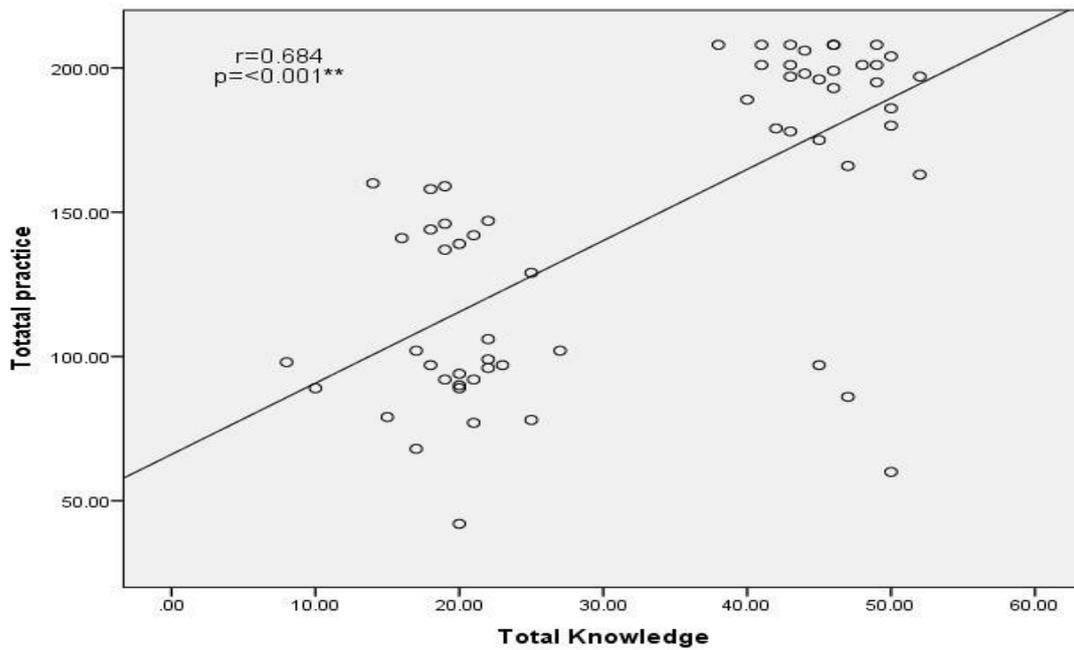
Table (5): Association between demographic characteristics of mothers and level of knowledge, Attitude and practice toward breastfeeding and complementary feeding in the capital Sana'a, Yemen (n=337).

Demographic characteristic	Knowledge score	Attitude score	Practice score
	Mean \pm SD	Mean \pm SD	Mean \pm SD
Age: (years)			
≤ 20	17.84 \pm 3.67	12.81 \pm 3.31	9.31 \pm 2.05
20 - ≤ 30	18.25 \pm 3.04	13.26 \pm 3.45	9.42 \pm 1.61
30 - ≤ 40	21.11 \pm 4.41	16.53 \pm 4.74	9.44 \pm 2.06
≥ 40	16.67 \pm 7.75	23.14 \pm 7.91	16.50 \pm 9.94
P-value	0.014*	0.011*	0.899
Residence:			
Urban	21.32 \pm 4.16	16.02 \pm 4.22	9.53 \pm 2.03
Rural	19.38 \pm 3.53	13.99 \pm 4.42	9.30 \pm 1.82
P-value	0.027*	0.020*	0.372
Level of Education			
Literacy	21.36 \pm 3.85	10.08 \pm 3.11	9.16 \pm 1.98
Read & Write	23.34 \pm 4.61	10.60 \pm 2.14	9.47 \pm 1.92
Primary School	12.81 \pm 3.31	9.31 \pm 2.05	18.26 \pm 3.86
Secondary School	13.26 \pm 3.45	9.42 \pm 1.61	20.41 \pm 4.13
Diploma/Uni. and above	16.53 \pm 4.74	9.44 \pm 2.06	21.11 \pm 3.88
P-value	0.023*	0.003*	0.001*
Duration of breastfeeding:			
1 - ≤ 3 Months	17.84 \pm 3.67	12.81 \pm 3.31	8.48 \pm 1.86
4 - ≤ 6 Months	18.25 \pm 3.04	13.26 \pm 3.45	9.11 \pm 1.70
≥ 7 Months	19.47 \pm 3.78	13.39 \pm 4.59	9.53 \pm 2.03
P-value	0.279	0.016*	0.001*
Type of delivery			

Normal Vagina	20.61 ± 4.01	14.03 ± 4.64	9.50 ± 1.90
Caesarean Section	21.06 ± 4.46	16.97 ± 3.79	9.89 ± 1.87
P-value	0.002*	0.011*	0.030*
Income :			
Low	22.95±4.16	10.61±2.18	9.38 ± 1.98
Middle	23.78±4.63	10.00±2.68	9.43 ± 1.75
High	21.14±6.16	11.64±1.50	9.34 ± 2.00
P-value	0.037*	0.014*	0.001*

Table (5) :This table explains the relationship between socio demographic characteristics of mothers and their total score of knowledge ,attitude and reported practice . Regarding Age group there are significantly difference between age group and knowledge and practice with p-value (0.014,0.11) respectively, While no significant between age group and practice. Regarding level of education this table detects that there is significant difference between level of education and KAP of mother P.value (0.023, 0.003, 0.001) respectively.

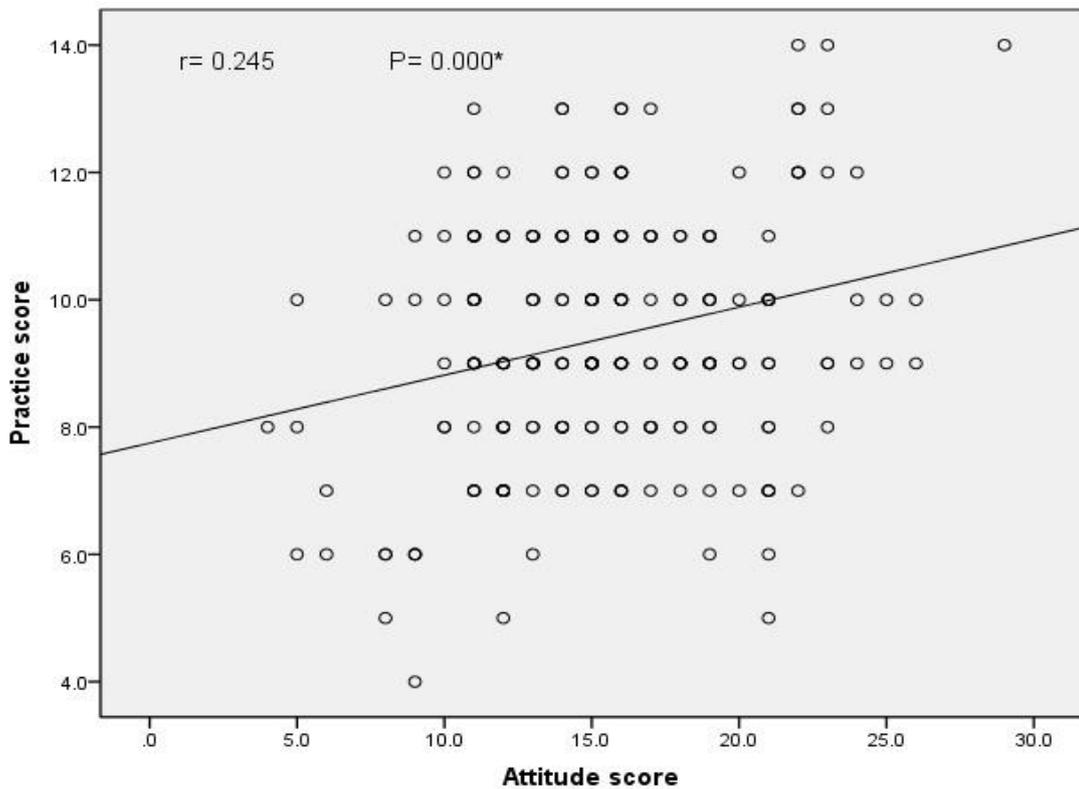
Regarding income this table detects that there is significant difference between income and KAP of mother Value (0.037, 0.014, 0.001) respectively.



*. Correlation is significant at the 0.05 level (2-tailed).

Figure (8): Correlation between overall knowledge level and overall reporting practice level of toward breastfeeding and complementary feeding in the capital Sana'a, Yemen (n=337).

In this figure , it was found that there was positive correlation between knowledge score and reported practice score $R= 0.648$ $P.value<0.001$.



*. Correlation is significant at the 0.05 level (2-tailed).

Figure (9): Correlation between overall Attitude level and overall reporting practice level of toward breastfeeding and complementary feeding in the capital Sana'a, Yemen (n=337).

In this figure, it was found that there was positive correlation between knowledge score and reported practice score $R = 0.245$ $P.value < 0.000$.



Discussion



Discussion

Breastfeeding is the best start in life for any child. Protecting, promoting and supporting breastfeeding is vital to maternal and child health, as well as the key to achieving multiple Sustainable Development Goals. WHO recommends that mothers start breastfeeding within 1 hour of birth and breastfeed exclusively for an infant's first 6 months to achieve optimal growth, development and health. In addition, the timely introduction of complementary foods should occur after 6 months of age, and breastfeeding should continue up to or beyond 2 years of age.

This study was conducted aiming to assess the knowledge, attitude and practice of mothers about breastfeeding and complementary feeding in Al-Sabaeen Hospital at Sana'a Yemen.

Sociodemographic and economic characteristics of the mothers with children less 23 months' old.

Respondents in this study were mothers of children less than 23 months old. Mothers totaling to 337 participated in the study. According to the results, around half of the mothers were aged 30 - 40 years. These findings are comparable to those of similar studies done in Pakistan (*Hasnain, Majrooh and Anjum, 2013*) and Cameroon (*Mananga et al, 2014*).

Additionally, in this study, the findings indicated that more than half (60.5%) of the mothers were house wives and this compares with a study done by *Ahmed, Hossain & Sanin)2012*(but fails to agree with a study by Gewa and Leslie (2015) which revealed that majority of the mothers were working.

According to the results of this study, private work acted as the main source of income that majority of the family members depended upon. This accounted for 45.4% of the respondents. In addition, the findings revealed that the occupation and education level of the household heads as well as family's source of income were significant determinants of nutritional status among children.

Mother's knowledge and attitude on breastfeeding and complementary feeding

According to this study results, mothers were unknowledgeable on breastfeeding and complementary feeding concurring with findings of a similar study done in informal settlement of Nairobi County (*Kipruto,2013*).

According to this study, the incorrect knowledge on get health education how to feed children was reported by 58.8%. This concurs with results of a study conducted in Korogoshi slums, Nairobi (*Kipruto, 2017*) but does disagree with results of a similar study conducted in Pakistan that showed more than half of mothers as having been knowledgeable on health education how to feed children (*Hasnain et al., 2013*).

The reason for poor maternal knowledge on breast feeding & CF could be due to absent of health partners and community based organizations in Yemen that promote optimal IYCF practices.

Regarding total knowledge about breastfeeding and complementary feeding among studied sample of mothers, the present study showed that 56.1% of them had fair knowledge and 37.1% of them had poor knowledge regarding breastfeeding and complementary feeding these results concurs with results of a research done in informal settlement, Nairobi (*Kipruto, 2013*).

The World Health Organization (WHO) recommends exclusive breastfeeding for the first six months of life.² This study showed that the attitude about exclusive breastfeeding was (39.8%) and initiation of breastfeeding soon after birth was poor (29.1%). Likewise, 57.9% of mothers knew about adequate time for initiation of complementary feeding but only 21.7% were found to be practicing it. This shows that there is a gap between knowledge and practice about infant and young child feeding. Even a higher gap in knowledge and practice regarding initiation of complementary feeding was found in a study conducted in Kanti Children's Hospital in Nepal in 2011

Regarding the total score of attitude, the majority of mother had negative attitude about breastfeeding and complementary feeding. These results are similar to the findings by (*Shamim S et al, 2005*) who also observed the similar decline and negative attitude.

Mother's practice on breastfeeding and complementary feeding

Though the study focused on complementary feeding, a brief information on breastfeeding was gathered since breastfeeding is an integral part of IYCF. In the current study, more than half of the children were not being breastfed at within an

hour of birth. concurring with the national figures (*KDHS, 2014*). Again, more than one third (**37.4%**) of the children were breastfed alongside complementary feeding and this was comparable to results of a study by Hasnain et al., (2013). More than half (**53.1%**) were not feed on colostrum and this is disagreeing to a similar research done in Bangladesh by (*Abdullah et. al, 2018*).

Timely initiation of appropriate foods is one of the most effective measures to combat child malnutrition (**Arikpo et al., 2018**). In the current study, **68.8%** of mothers started giving their children other foods before the recommended age. The findings compare findings of disagree study done in Napel (*Lamichhane et al., 2016*)

In this study around two thirds (**64.4%**) of mothers not continuous breastfeeding for 2 years of the children, The findings however are similar to those of studies conducted in Korogocho slums, Nairobi County (*Kiproto, 2013*) and Kitui County (*Kimiywe & Chege, 2013*).

According to this study, around half (51.9%) of the mothers had prepare child's food from variety food substances. These findings are comparable to those of KAPB survey conducted in Turkana County (*MOH/UNICEF, 2017*) and a similar studies done in Kitui (*Kimiywe & Chege, 2013*) and in Cameroon (*Mananga et al., 2014*).

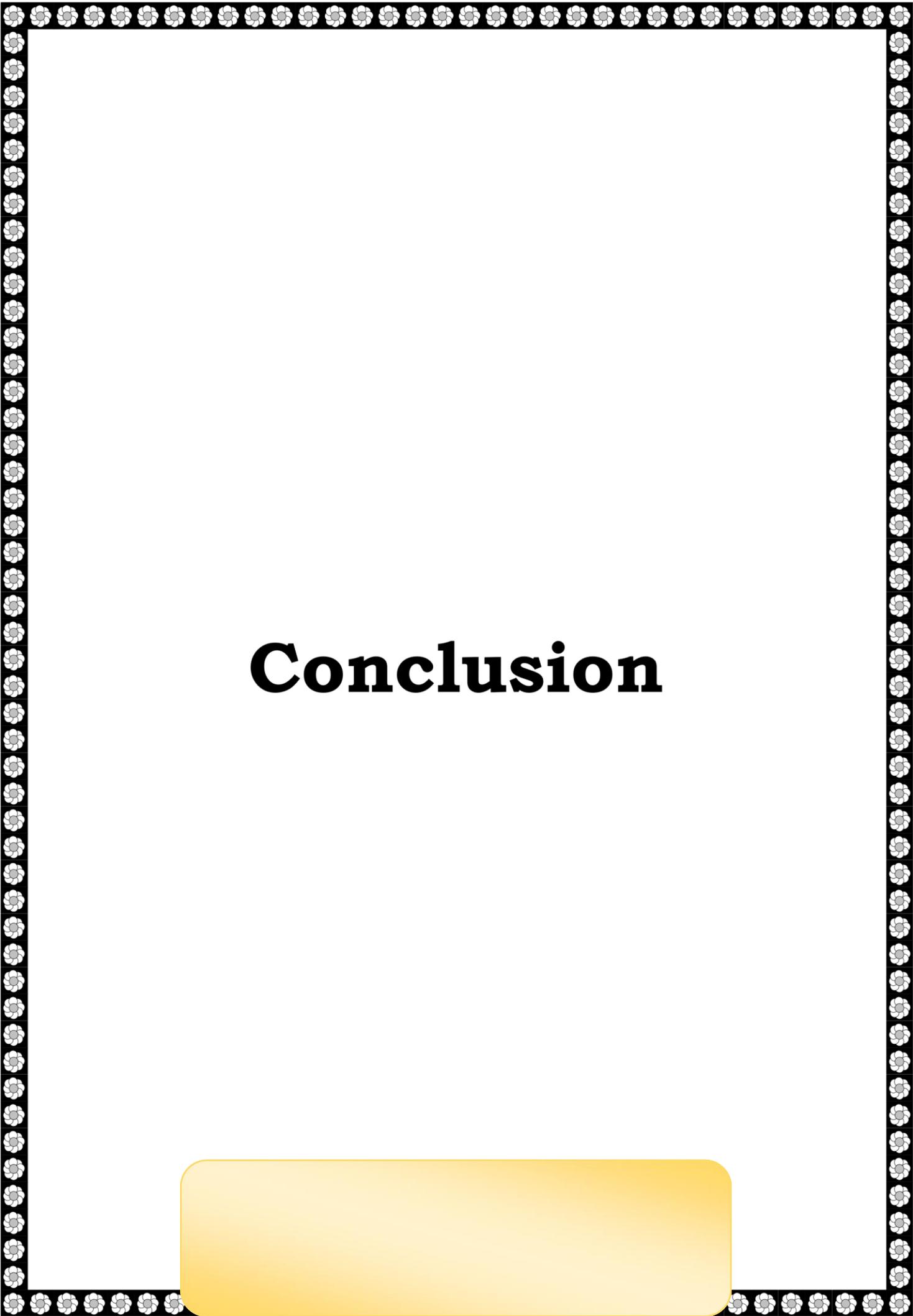
In the current study, illustrates that more than two third (43.1%) of the mothers had poor practice about breastfeeding and complementary feeding, However, the findings are consistent with those of a study done in Ethiopia (*Disha et al., 2012*). Also this compares to a similar study done in Kahawa West, Nairobi (*Angelica, 2017*).

In this study, a significant relation between maternal education, breastfeeding & CF was detected. This was in coherence with Webb et al. (2009) who examined the associations between maternal academic skills and indicators for the initiation of breastfeeding and timely introduction of complementary foods; mothers in highest category of academic skills had greater odds of initiating exclusive breastfeeding

According to the correlation between of mother's knowledge and attitude about breastfeeding and complementary feeding, the present study showed that there was positive correlation between attitude and knowledge ($R= 0.648$ $P<0.001$). Also, the

present study finding that the positive correlation between attitude and practice.
R.0.245

P.value <0.000.. level. This outcome was consistent with *Dewey KG et al.,2003* who mentioned that the correlation of KAP scores overall revealed a positive correlation among knowledge and attitude. Also this agreement with *Van Rossum et al. 2013.* who reported that the positive correlation between score of knowledge, attitude and practice.



Conclusion



Conclusion

This study was conducted aiming to assess the knowledge, attitude and practice of mothers about breastfeeding and complementary feeding in AlSabaeen Hospital at Sana'a Yemen, it was concluded that:

Concerning mothers ' knowledge, the results show that there was a poor level of knowledge, negative attitude and poor practice towards breastfeeding and complementary feeding.

- There was statistical significant difference between mother's knowledge about breastfeeding and complementary feeding and their level of education.
- There was statistical significant difference between mother's practice about breastfeeding and complementary feeding and their income.
- There was a positive correlation found between knowledge and practice also positive correlation between attitude and practice about breastfeeding and complementary feeding.



Recommendations

Recommendation

Based on the results of the current study, it recommended the following:

1. Increase mother's awareness about breastfeeding and CF through local media such as Sana'a Radio.
2. Campaign health about breastfeeding and CF in rural areas should be conducted through health centers, and community leaders.
3. Use the media such as video sessions at health facilities to provide knowledge for mothers about breastfeeding and CF.
4. Health education for mothers about breastfeeding and CF during antenatal visits in last trimester.