

THE CURRENT INFANT FEEDING PRACTICES AND RELATED  
FACTORS OF INDIAN AND ZULU MOTHERS WITH 0-9 MONTH OLD  
INFANTS ATTENDING WELL BABY CLINICS IN DURBAN-NORTH

By

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## ABSTRACT

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**Background:** Currently there are no studies that have been conducted regarding infant feeding practices for Indian mothers neither comparing Indian mothers with other race in South Africa. Thus, this may be the first study and further research may be conducted.

**Objective:** The objective of the study was to determine and compare the infant feeding practices and factors influencing these practices of Indian and Zulu mothers with 0-9 month's old infants attending well-baby clinics in Durban-North of the EtheKwini District, KwaZulu-Natal.

**Design:** A descriptive cross-sectional survey of mothers was performed.

**Subjects and setting:** Four hundred and fifty participants (50%) Indian and (50%) Zulu mothers with infants aged 0-9 months attending Tongaat community health centre, Verulam and Trenance Park Clinics were included in the study conducted between August and October 2016.

**Outcome measures:** A data collection tool included four indicators: (1) socio-demographic characteristics; (2) infant feeding practices (3) mother's knowledge, attitude, perception and beliefs regarding infant feeding as well as (4) resources that could influence infant feeding practices) which were measured and compared using Chi-square test and independent samples t-test.

**Results:** High prevalence of breastfeeding immediately after delivery was reported by both groups of Indian (95.5%) and Zulu (90.1%) mothers. However, there was a statistically significant difference between race and food/liquids given to infants before six months of age. The exclusive breastfeeding rate was (37.8%) for Indian infants and (64%) for Zulu infants, by the age of six months. The majority of mothers on both groups decided on their own to feed infants other foods and/ or liquids. For Indian mothers, returning back to work was the main reason to feed infants something other than breast milk, whereas the Zulu mothers reported to feel that their infants were hungry. Overall, clinical staff were the predominant source of infant feeding information.

**Conclusion:** This study confirmed that breastfeeding is a universal infant feeding practice. However, there are challenges that influence the practice of appropriate infant feeding.

## **PREFACE**

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This dissertation was carried out in the Discipline of Dietetics and Human Nutrition, School of Agricultural, Earth and Environmental Sciences, University of KwaZulu-Natal, Pietermaritzburg from June 2016 to December 2017, under the supervision of Dr Suzanna Kassier and Professor Frederick Veldman.

This study represents the original work by the researcher and has not otherwise been submitted in any form for any degree or diploma to any University. Where the work of others has been used, it is acknowledged accordingly in the text.

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## LIST OF ABBREVIATIONS

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CCG	Community Care Giver
CHC	Community Health Centre
DHS	Demographic and Health Survey
EBF	Exclusive Breastfeeding
ESPGHAN	European Society for Paediatric Gastroenterology Hepatology and Nutrition
FP	Family Planning
HIV	Human Immunodeficiency Virus
HSRC	Human Sciences Research Council
ICF	International Classification of Function
IYCF	Infant and Young Child Feeding
KZN	KwaZulu Natal
LAM	Lactation Amenorrhea Method
MBFI	Mother and Baby Friendly Initiative
MDG	Millenium Development Goal
MICS	Multiple Indicator Cluster Surveys
NA	Nutrition Advisor
NDOH	National Department of Health
NDHS	Nigerian Demographic and Health Survey
NFHS III	Third National Family Health Survey
NRDC	Natural Resource Defence Council
PMTCT	Prevention of Mother-to-Child Transmission
SA	South Africa
SADHS	South African Demographic and Health Survey
SAMRC	South African Medical Research Council
SANHANES	South African National Health and Nutrition Examination Survey
UNICEF	United Nations Children's Fund
WHO	World Health Organization

## **CHAPTER ONE**

### **THE PROBLEM AND ITS SETTING**

#### **1.1 INTRODUCTION AND IMPORTANCE OF THE STUDY**

Malnutrition is a major contributor to global infant mortality [World Health Organization (WHO), 2014], and is associated with forty five percent of mortality in children under five years of age in developing countries (Vakili *et al.*, 2015). Results from South Africa Demographic and Health Survey (SADHS) conducted in 2016, reported that five years before the survey, the under-five mortality and infant mortality rates dropped to 42 deaths and 35 deaths per 1000 live births, respectively (National Department of Health (NDOH *et al.*, 2017). This shows that malnutrition still remained the main health burden in South Africa, as well as globally. Breastfeeding, especially exclusive breastfeeding (EBF), during the first six months of life has been identified as the cornerstone for facilitating optimal infant nutrition, health and improve child survival (Kuhn & Kroon, 2015). The above statement is supported by Kramer & Kakuma (2012) who found that early initiation of and exclusive breastfeeding for six months provided protection against infections such as gastrointestinal infections which can lead to severe nutrient depletion and therefore stunting. The WHO recommends exclusive breastfeeding and continued breastfeeding for up to two years of age and beyond (Siziba *et al.*, 2015), and that Human Immunodeficiency virus (HIV) - positive mothers should also practice exclusive breastfeeding while receiving antiretroviral or prophylaxis for their infants (WHO, 2010).

A study conducted in four provinces of South Africa (Eastern Cape, Gauteng, Free State and North West) reported that approximately 90% of mothers initiated breastfeeding within the first hour of delivery. However, this was not maintained, as the EBF rates for the first six months drastically decreased to 12% (Siziba *et al.*, 2015). A study conducted in six countries including Africa, India and Latin America showed that India had the highest EBF rates at 42 days post-delivery with Belgaum city at 99.5% and Nagpur city at 90.0%. African sites (Zambia and Kenya) were reported to have 98.7% and 85.5% respectively at 42 days post delivery, while Latin American site (Guatemala) had 84.6%. Fifteen percent (15%) of women aged younger than 20 and older than 35 years did not practice exclusive breastfeeding at the African sites which were Kenya & Zambia (Patel *et al.*, 2015). Outcomes from the South

African Health and Nutrition Examination Survey (SANHANES-1) conducted in 2012 reported that 17.5% of infants under six months of age were never breastfed, and about seven per cent of infants were exclusively breastfed, whereas 75.1% of infants were breastfed (not exclusively). The survey also found that approximately 64% of infants in South Africa were given solids or semi-solid foods before the age of six months (Shisana *et al.*, 2013). The latest SADHS (2016) found an increase on EBF and also an increase in the number of infants who were never breastfed, which showed that 32% of infants under six months of age were exclusively breastfed and 25% percent of infants under six months of age were not breastfed at all. While 14% of infants consumed plain water, 1% consumed non-milk liquids, 11% consumed other milk, and 18% consumed complementary foods in addition to breast milk (NDOH *et al.*, 2017).

Poor infant feeding practices result in high rates of malnutrition in developing countries (Kadiyala & Rawat, 2012; Lutter *et al.*, 2011). Sunguya *et al.* (2013) and Lutter *et al.* (2011) explained these poor practices include feeding infants with inadequate feeding patterns, low dietary diversity, inadequate quantity and poor quality food intake. In addition, contraction of high risk infections and diarrhea as well as a reduction in the amount of breast milk consumed by infants could be the result of poor infant feeding practices (Mushaphi *et al.*, 2008; Kools *et al.*, 2006). According to Siziba *et al.* (2015), South Africa still has a major problem regarding infant feeding practices, namely the early introduction of complementary food, mixed feeding and failure to breastfeed exclusively. Furthermore, mixed feeding is associated with on average, a three fold increase in postnatal HIV transmission by six months of age (WHO & United Nations Children's Fund (UNICEF), 2016; Coovadia *et al.*, 2007).

EBF protects the integrity of the intestinal mucosa, and as with intact skin, an intact gut epithelium was associated with reduced risk of HIV transmission (Coovadia *et al.*, 2007). Duijts *et al.* (2010) agrees with the above authors namely that EBF reduce gastrointestinal tract infections in infants. However, the benefits of breastfeeding are not limited to the child, as mothers who breastfeed have decreased postpartum blood loss due to uterine contraction promoted by breastfeeding and decreased risk of developing breast and ovarian cancer (WHO, 2014; Avery, 2013; Ip *et al.*, 2007). Breastfeeding plays a vital role in society as it delays resumption of ovulation and the return of a woman's menstrual cycle. In addition, it also contributes to improved child survival by contributing to birth spacing, and therefore

increasing the interval between the birth of children (Dermitas, 2012; Eidelman *et al.*, 2012; Radaelli *et al.*, 2012).

A study conducted in rural North India, showed that infant feeding practices in these communities were shaped by their beliefs, which are influenced by social, cultural and economic factors (Mahmood *et al.*, 2012). The latter authors agree that certain cultural practice such as removing the colostrum from the mothers' breast before breastfeeding commences was encouraged by grandmothers (Njai & Dixey, 2013). The belief that mother's milk is not ready until the second to third day post-partum was reported in India. This delayed the initiation of breastfeeding since colostrum was generally discarded (Bandyopadhyay, 2009). In Kenya, a rapid qualitative assessment of infant and young child feeding attitudes and beliefs, found an association between social and economic factors and breastfeeding practices. Tradition and modern perceptions of breastfeeding put some mothers under pressure to introduce complementary foods earlier than recommended. A general lack of community support resulted in the early introduction of complementary foods which were of very poor nutritional value (Sholeye *et al.*, 2015; Ministry of Health-Kenya, 2011).

National Department of Health (NDOH) in South Africa reported the main challenges that resulted in very low EBF rates in the country. These challenges included the belief that breast milk alone is not sufficient, fear to transmit HIV to the infants, marketing of breast milk substitutes, breastfeeding problems, returning to full time employment without supportive structures, lack of guidance and lack of encouragement regarding breastfeeding from health care personnel among other factors (NDOH, 2008). Some obstacles to successful breastfeeding included poor knowledge and skills among health care professionals in breastfeeding support as well as inconsistent training. In Kenya, it was found that health workers did not routinely educate mothers on infant feeding (Sholeye *et al.*, 2015). These factors therefore underline the importance of educational strategies to improve infant feeding practices. It is therefore imperative that health care personnel receive current, evidence-based knowledge and skills regarding appropriate infant and young child feeding practices so that they can provide quality counselling and adequate support to mothers and caregivers. A Cochrane review conducted in 14 countries, including Bangladesh, Nepal, Nigeria, Netherlands, Republic of Belarus, among others, on the support given to breastfeeding mothers found a positive effect on the duration of EBF when mothers received any form of

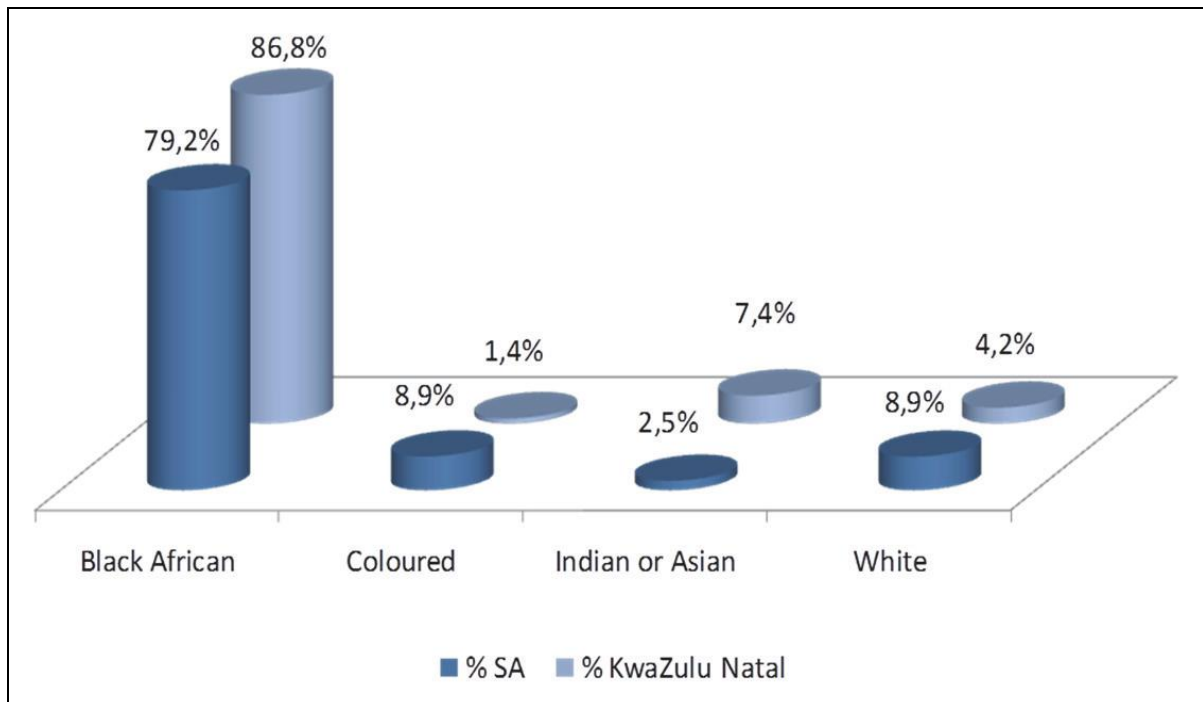


support on breastfeeding and in programmes that used WHO and United Nations Children's Fund (UNICEF) breastfeeding training (Britton *et al.*, 2007). In addition, a reduction in child morbidity and mortality can be achieved only when infant and young child feeding are prioritized in national policies and strategies (NDOH, 2013).

## **1.2 STATEMENT OF THE PROBLEM**

Malnutrition has been cited as the major public health problem worldwide (Delisle, 2008). The millenium development goal (MDG) four focused on reducing the mortality rate of infants and young children under-five by two thirds between 1990 and 2015. However, this target was never met by South Africa as the goal for each province was to reduce its under-five mortality rate to a minimum of twenty per thousand live-births by 2015. One of the reasons why the country did not meet the target was that the prevalence of breastfeeding, especially EBF was reported to be very low (UNICEF 2011). Research in India showed that even though EBF was known to reduce infant mortality by 13%, the EBF rates remained low in both rural and urban areas (Lal & Rai, 2009).

Studies have provided evidence that proves that EBF remain low globally, in Africa, as well as in South Africa. There are various reasons for the lack of EBF. However, one of the possible contributing factors could be culture (Agunbiade & Ogunleye, 2012; Osman *et al.*, 2009). However, there seems to a paucity of published data investigating the effect that culture has on infant feeding practices in South Africa, in a province such as KwaZulu-Natal (KZN) where a significant proportion of its residents are Zulu followed by Indian 86.8 % and 7.4% respectively (figure 1.1). EThekwini Municipality had approximately 74 % African followed by about 17 % Indian community (Statistics South Africa, 2011). KZN has a large complement of Zulu inhabitants followed by Indian inhabitants; therefore this study will compare these two groups in terms of infant feeding practices to determine if culture plays a role in the infant feeding practices. The reason for this decision was that literature review indicated that infant feeding practices were very culturally specific (Danso, 2014; Njai & Dixey, 2013; Olson *et al.*, 2010; Chung *et al.*, 2008; Spencer, 2008; Matusiak, 2005).



**Figure 1.1:** Percentage distribution of the population group, KwaZulu-Natal and South Africa, 2011

Source: Statistics South Africa, Census 2011

### 1.3 STUDY AIM

The aim of this study was to determine and compare the current infant feeding practices and related factors of Indian and Zulu mothers with 0-9 month old infants attending well baby clinics in Durban-North.

### 1.4 TYPE OF STUDY

A cross sectional descriptive survey was conducted to determine and compare the infant feeding practices and related factors of Zulu and Indian mothers.

## **1.5 OBJECTIVES OF THE STUDY**

For the purpose of this study, Indian and Zulu mothers with 0-9 month old infants attending well baby clinics in Durban-North were compared in terms of the following study objectives:

- 1.5.1 Socio-demographic characteristics;
- 1.5.2 Infant feeding practices;
- 1.5.3 Knowledge, attitudes, perceptions and cultural beliefs regarding infant feeding practices;
- 1.5.4 Influence of family, friends and clinic-based health workers in shaping infant feeding practices; and
- 1.5.5 Resources that could influence infant feeding practices.

## **1.6 DEFINITION OF TERMS**

### **1.6.1 Complementary foods**

Complementary foods means any foodstuff, whether in liquid, solid or semi-solid form, given to an infant after the age of six months as part of the transitional process when breast milk or commercial formula alone is no longer sufficient to meet the nutritional requirements of infants (Siziba, 2014; NDOH, 2013).

### **1.6.2 Exclusive Breastfeeding**

Exclusive breastfeeding is when the infant receives only breast milk without any other liquids or solids, not even water, except for oral rehydration solution or drops or syrups of vitamins, minerals or medicines (WHO & UNICEF, 2016; Siziba, 2014; NDOH, 2013).

### **1.6.3 Formula feeding**

Formula feeding, also referred to replacement feeding, is defined as feeding an infant who is not receiving any breast milk a diet that provides all the nutrients children need until they can be fully fed on family foods. This should be with a suitable breast milk substitute that is

commercial infant formula milk, during the first six months. Then after six months, it should preferably be with a suitable breast milk substitute and complementary foods made from appropriately prepared and nutrient enriched family foods given three to five times per day (WHO & UNICEF, 2016; NDOH, 2013).

#### **1.6.4 Infant**

For the purpose of this study, the term infant is used when referring to children younger than 12 months of age (NDOH, 2014; NDOH, 2013).

#### **1.6.5 Mixed feeding**

Mixed feeding refers to a practice when an infant younger than six months of age is given other liquids and/or foods together with breast milk. This could be water, other types of milk or any type of solid food (WHO & UNICEF, 2016; Siziba, 2014; NDOH, 2013).

#### **1.6.6 Prelacteal feeds**

Prelacteal feeds are any fluids or foods given to infants before breastfeeding, such as hot water, sugar-water, honey, mustard oil, tea, or goats /cow's milk (Bandyopadhyay, 2009).

### **1.8 DELIMINATION OF THE STUDY**

Only Zulu and Indian mothers were recruited as they represent the majority of residents North of Durban. According to Statistics South Africa (2011) eThekweni municipality had 3.44 million people residing within the municipality, with greater population concentrations coming from the central 1.18 million (34.5%) and north regions 1.15 million (33.6%). The majority of the population come from the African community (73.8%) followed by the Indian community (16.7%), white community (6.6%), coloured community (2.5%) and other (0.4%).

### Inclusion criteria

- The respondent had to be the infant's mother;
- The respondent had to be older than 18 years of age;
- The respondent had to be a Zulu or Indian mother;
- The respondent should not have twins (index child);
- The participant should not have received any formalized training in nutrition, and
- The participant should have an infant younger than 6 months of age at the time of the study for Zulu mothers and younger than 9 months of age for Indian mothers.

### Exclusion criteria

- The respondent not a mother to the infant;
- The respondent younger than 18 years of age;
- The respondent not a Zulu or Indian mother;
- The respondent with twins (index child);
- The respondent with any formalized training in nutrition, and
- The respondent with an infant older than 6 months of age at the time of the study for Zulu mothers and older than 9 months of age for Indian mothers.

## **1.9 ASSUMPTIONS**

For the purpose of this study, it was assumed that the responses from study participants were truthfull. Of the three facilities included in the study, only one provide maternity services i.e. conducts birth deliveries and is Mother and Baby Friendly. Place of delivery is therefore not assumed to make a difference to the characteristics of the mothers. Respondents were not asked whether their family tongue was Hindi or Tamil, however it was assumed that race is the same as culture. It was also assumed that Zulu respondents from region to region have taboos that could influence weaning or supplemental foods/ liquids.

## **1.10 DISSERTATION OUTLINE**

This masters dissertation will consists of the following chapters:

Chapter 1 incorporates the introduction and importance of the study, statement of the problem, study aim and objectives, definition of terms and abbreviations, delimitationss and

assumptions. Chapter 2 presents a review of the literature in accordance with the study objectives. Chapter 3 provides a discussion of the methods and materials used for data collection and analysis thereof. Chapter 4 presents the results of the study. Chapter 5 contains the discussion of the results in conjunction with the literature presented in chapter 2. Chapter 6 provides a conclusion of the study and recommendations for future research.

## **1.11 SUMMARY**

EBF has many benefits for the infant which includes the reduction of the risk of contracting infections and improve mothers health by reducing the risk of various cancers and heavy bleeding post delivery which may result to aneamia. Appropriate infant feeding which includes EBF for the first six months of the infants' life, continued breastfeeding for up to two years and beyond, as well as adequate complementary feeding from six months of age of the infant could reduce malnutrition, hence decreasing high rates of infant morbidity and mortality. Social, cultural and economic factors have a significant impact on the infant feeding practices. Adequate support regarding proper infant feeding practices from the family, community as well as health care professionals to mothers with infants can also contribute to improved child survival. Sufficient and adequate training for the health care professionals to boost their confidence could play a major role when providing infant feeding information to the mothers.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 INTRODUCTION**

Breast milk has been scientifically proven to be nutritionally and immunologically superior to infant formula, with an adequate amount and combination of macronutrients, micronutrients and immune factors to promote optimal infant growth and development (Tshikovihi *et al.*, 2015). In addition, breast milk has been identified as one of the primary strategies used to enhance infant nutrition and improving child survival globally, thereby reducing infant morbidity and mortality (Ijumba *et al.*, 2014; Meedya *et al.*, 2010). WHO & UNICEF (2016) recommend those HIV-positive mothers and those whose infants are HIV uninfected or of unknown HIV status should exclusively breastfeed their infants for the first six months of life, introduce appropriate complementary foods thereafter and continue breastfeeding. In addition, the WHO recommendation continues to states that breastfeeding should only stop once a nutritionally adequate and safe diet without breast milk can be provided. South Africa supports the WHO recommendation that mothers should practice EBF for the six months of the infant's life, with the introduction of complementary food given at the appropriate age, and continued supplementary breastfeeding for up to two years and beyond (NDOH, 2011).

South Africa has very high breastfeeding initiation rates (75-97%), however, this is not maintained. Hence countrywide, EBF rates are very low (Ghuman *et al.*, 2009). A study conducted by Siziba (2014), in four provinces of South Africa, found that breastfeeding initiation within the first hour post-delivery was 90%. EBF for six months with continued breastfeeding and appropriate complementary feeding for up to two years or beyond, could save approximately two million lives annually on a global basis (Yeneabat *et al.*, 2014). Breast milk intake is reduced when complementary foods are introduced to infants before the age of six months, resulting in interference with the absorption of nutrients found in breast milk. In addition, early introduction of complementary foods can expose infants to infectious diseases, thereby negatively impacting on their growth and development. Thus, if infants are not breastfed, they are six times more likely to die due to diarrhoea or respiratory infections than infants who were breastfed (UNICEF, 2011).

According to Ogunlesi (2010), Ghuman *et al.* (2009), Cripe (2008), and Mushaphi *et al.* (2008), breastfeeding practices, including the initiation and duration thereof, are influenced by multiple interwoven factors including health, psychological, cultural, political and economic factors. Poor infant and young child feeding practices have been found to be a major contributor to the high burden of childhood morbidity and mortality in many developing countries. Poor socio-economic conditions, poor quality of child health care services, and a low level of maternal education and inadequate dietary intake were the factors that contributed to the unacceptably high early childhood morbidity and mortality in several Sub-Saharan African countries (Hajeeboy *et al.*, 2014; Ip *et al.*, 2007). Evidence shows that the early introduction of complementary food, mixed feeding and failure to breastfeed exclusively, remained major challenges in South Africa (Siziba *et al.*, 2015). NDOH *et al.* (2017) reported that these challenges still exist in South Africa in the SADHS 2016. In all cultures there are a number of factors that affect women's decisions on how to feed their children (Matusiak, 2005).

The literature below will expand on the role socio-demographic factors play in shaping infant feeding practices. Hence, infant feeding practices will be discussed by first focusing on EBF, the benefits of breastfeeding and dangers related to the early introduction of complementary foods and liquids. Global infant feeding practices, and practices on the African continent as well as India will also be discussed. This will be followed by a discussion on the factors that influence a mother's infant feeding decisions.

## **2.2 SOCIO-DEMOGRAPHIC CHARACTERISTICS**

Documenting the socio-demographic and socioeconomic factors related to the target group is essential when conducting a research, in order to gain insight into the target group's living conditions, lifestyle and resources (Barros *et al.*, 2010). Due to the fact that infant formula feeding is expensive and requires adequate time, safe and clean water, it can be assumed that poor living conditions are more likely to result in the choice of breastfeeding as an infant feeding option (Labiner-Wolfe *et al.*, 2008). However, mixed feeding was found to be a common infant feeding practice in South Africa. Mixed feeding could also be influenced by the fact that despite mothers' intention to breastfeed for longer, they had to return to work or



school before the infant was six months old due to limited maternity leave while others were still scholars (Du Plessis, 2013; Smith *et al.*, 2013; Inoue *et al.*, 2012).

### **2.2.1 Maternal age and parity**

Mothers younger than 20 years of age or older than 35 years of age could not sustain EBF (Patel *et al.*, 2015). This finding was supported by Yeneabat *et al.* (2014), who also found that mothers under the age of 20 years were approximately two times more likely to stop EBF early than those who were older than 30 years. In addition, younger maternal age was associated with low rates of EBF (Brown *et al.*, 2011; Qureshi *et al.*, 2011). According to Sipsma *et al.* (2013), adolescent mothers were obliged to obey their grandmothers when it came to infant feeding choices. In contrast, some studies reported that the older the mother, the higher the possibilities of breastfeeding exclusively and a longer duration of breastfeeding (Bolton *et al.*, 2009; Chalmers *et al.*, 2009). A lower likelihood of the cessation of breastfeeding among older mothers could reflect change in infant and young child's feeding practices over time, with healthier infant feeding practices being more common among older mothers. It could also be related to a longer period of exposure to messages that promote breastfeeding among older mothers. Some studies from Northern Nigeria (Jos & Sokoto) and Nairobi in Kenya, found no association between maternal age and the practice of EBF (Umar & Oche, 2013; Nyanga *et al.*, 2012; Ministry of Health – Kenya, 2011; Ogbonna & Daboer, 2007).

Findings from various studies differ regarding the effect of parity and breastfeeding, as Qureshi *et al.* (2011) and Ukegbu *et al.* (2010) found that multipara mothers have increased knowledge and self-confidence from earlier breastfeeding experiences. In contrast, the previous challenging breastfeeding experiences were found to have negative impact on breastfeeding in other settings with multi parity (Uchendu *et al.*, 2009). Hence, these conflicting results could be indicative of the fact that parity does not have impact breastfeeding practices (Ogunlesi, 2010; Sapna *et al.*, 2009). Barriers to early cessation of breastfeeding include inadequate production of breast milk and breast discomfort, especially among prim gravida mothers (Patel *et al.*, 2015).

### **2.2.2 Household status**

In Nigeria, extended families were considered as supportive in promoting breastfeeding, especially at the stage of early initiation. Even though grandmothers were supportive and mothers intended to breastfeed exclusively and continue with breastfeeding, personal and socio-cultural factors acted as constraints as mothers were expected to provide support for their household needs. This negatively influenced infant feeding practices in these households (Agunbiade & Ogunleye, 2012). It was found that breastfeeding mothers experienced strain as they struggled to engage in economic activities to support their husband, which exposed households to malnutrition (nursing mothers not receiving adequate diets). The latter in turn had implications on their ability to breastfeed exclusively as well as the entire practices of infant feeding (Njai & Dixey, 2013).

Studies conducted in Japan and Cape Town found that breastfeeding was seen as a social practice because of the influence family and friends have on mother's feeding choices (Inoue *et al.*, 2012; Zulliger *et al.*, 2011). Nevertheless, the majority of infant feeding decisions were dependent on the mother's cultural, social and economic context (Du Plessis, 2013; Zulliger *et al.*, 2011). Some studies conducted in Malawi and Mozambique, found that fathers and grandmothers were influential when it came to mother's infant feeding practices (Arts *et al.*, 2011).

### **2.2.3 Education of the mother**

Maternal educational status was associated with breastfeeding practice in some studies. Findings from Jos, North Central Nigeria (Ogbonna & Daboer, 2007) and Nyando district, Kenya (Nyanga *et al.*, 2012) also found a relationship between mother's level of education and breastfeeding practices. This however, is in contrast with findings from Sokoto, North Western Nigeria, where it was found that level of education had no association with the practice of exclusive breastfeeding (Umar & Oche, 2013). Another study conducted in Nigerian semi-urban setting, found that mothers with a secondary level of education gave pre-lacteal feeds to their infants and had difficulty to practice EBF (Ogunlesi, 2010). Whereas, according to Qureshi *et al.*, (2011) and Uchendu *et al.*, (2009), a low level of maternal education contributed to low EBF practices. It is expected that mothers who are

highly educated may be able to breastfeed exclusively as recommended because they are more likely to understand the benefits of breastfeeding when compared to those who are less educated and may not be aware of the importance to breastfeed exclusively but breastfeed longer because of their tradition (Emmanuel, 2015).

#### **2.2.4 Maternal employment**

According to the results of the Quarterly Labour Force Survey for the fourth quarter of 2016, South Africa has an unemployment rate of 26.5%, with about 37.1% of the youth (15-34 years of age) being unemployed (Statistics SA, 2017). Education plays an important role as a predominant socio-economic factor as it is associated with job attainment, access to resources and lower risk of poverty (Statistic SA, 2017; Abu-Saad & Fraser, 2010). Unemployment rate was 31.2% and 7% for those with education level of less than matric and graduates respectively (Statistics SA, 2017). This could have a negative impact on infant feeding practices, as some mothers may leave their infants with family members to look for jobs while others could provide poor dietary diversity during the introduction of complementary foods (Agedew *et al.*, 2014). A high socio-economic status was associated with low EBF rate and short duration of overall breastfeeding (Ajibade *et al.*, 2013; Ekanem *et al.*, 2012; Okeh, 2010). Research conducted in India showed that working women decided to stop breastfeeding before returning to work. As a result, women on maternity leave started weaning their infants prematurely, even though they had intended to breastfeed for longer. Hence, these women gave their infants infant formula before returning to work, so that the infants could get accustomed to infant formula (Maharaj & Bandyopadhyay, 2013). In the above-mentioned study, expressing breast milk was recognised as time consuming and inconvenient, as mothers were unfamiliar with the practice. Therefore, breast milk was substituted with infant formula when women were at work and the cessation of breastfeeding occurred eventually.

Another study conducted in South Western region of Nigeria showed that mothers who worked from home introduced complementary foods earlier than all other groups. The majority of mothers working in offices or factories introduced complementary foods between three to six months, giving infants more of these foods per day as compared to breast milk (Ogunba, 2015). These findings were similar to the study reporting that employed mothers

introduced complementary foods before six months (Farhanah & Naleena, 2012). According to Ogunba (2015), the decision to introduce complementary foods was influenced by a lack of day care in most work places and the fear of diarrhoea from inappropriate hygiene practices by caregivers in handling expressed breast milk. Yet, another study reported that maternal decisions to breastfeed was influenced by knowledge, support and help with difficulties (breast problems, discouraging comments from family members, and challenge of breastfeeding in public), and not necessarily the environment they live in or work at neither the type of job (Brown *et al.*, 2011).

According to Yeneabat *et al.*, (2014), working mothers were approximately two times more likely to terminate EBF early when compared to stay at home mothers. Mothers stopped breastfeeding infants at the age of one month, reporting that they had to return to work or school. This indicated that mothers were either not given sufficient maternity leave, or that self-employed mothers had no maternity leave at all (Siziba *et al.*, 2015). Several studies also reported that the choice of infant feeding practice was influenced by mothers who were getting insufficient maternity leave (Du Plessis, 2013; Kassier & Veldman, 2013; Radwan, 2013; Kruger & Dolman, 2010). A study conducted in Sokoto, North Western Nigeria, found no association between occupation and breastfeeding practices (Umar & Oche, 2013). This however is in contrast to the findings of several studies in which paid employment was shown to be associated with breastfeeding practices and also served as a barrier to the practice of EBF (Agbo *et al.*, 2013; Nyanga *et al.*, 2012; Ministry of Health-Kenya 2011; Stewart-Glenn, 2008).

Mothers with infants working in places that have breastfeeding policies or support breastfeeding would not experience many challenges related to breastfeeding exclusively. Employees who breastfeed their infants may require time to express breast milk or be allowed to have lactation breaks in order to maintain EBF for six months (Smith *et al.*, 2013).

### **2.2.5 Access to safe drinking water**

The WHO & UNICEF (2010) reported that almost 900 million people lack access to safe drinking water worldwide. In 2008 Sub-Saharan Africa had 40% of the total population who still lacked access to safe drinking water sources when compared to 51% in 1990. Sub-

Saharan Africa, Southern Asia, Eastern Asia and South-Eastern Asia faced the greatest challenges in providing piped water with 37%, 25%, 17% and nine per cent (9%) of the population respectively, not having access to safe sources of drinking water (UNICEF & WHO, 2011).

Supplemental water given to infants in addition to breast milk was a common practice in Africa with an estimated 70% of infants younger than six months receiving supplemental water (UNICEF, 2007). This was done by family members in a study conducted in Mazabuka, Zambia because it was one of their beliefs that breast milk alone does not provide adequate hydration in hot climates (Fjeld *et al.*, 2008).

## **2.3 INFANT FEEDING PRACTICES**

### **2.3.1 Exclusive breastfeeding**

Breastfeeding has an integral role in child survival, growth and development. Breast milk provides the essential nutrients for infants younger than six months of age to meet their nutritional needs in early childhood (Sholeye *et al.*, 2015; WHO, 2014). Breast milk is safe and contains antibodies that help protect infants against infectious diseases and boosts immunity (WHO, 2014). Studies showed that infants who were exclusively breastfed from birth to six months, had a significantly lower prevalence of diarrhoea, gastrointestinal tract and acute respiratory infection than those who were not exclusively breastfed (Kramer & Kakuma, 2012; Mhrshahi *et al.*, 2008). Infants who have been exclusively breastfed for six months, have a lower risk of diseases such as childhood obesity, diabetes and mental health problems, especially on adolescence and have a higher intelligence quotient (Davis *et al.*, 2012; UNICEF, 2010). In addition, EBF is the most appropriate feeding option for many HIV- infected mothers in sub-Saharan Africa, although its acceptability and feasibility needs to be improved by promoting it as the best feeding option for all infants. It reduces the risk of mother-to-child HIV Transmission (Cames *et al.*, 2009). Women also benefit by exclusively breastfeeding for six months because it ensures better reproductive and postmenopausal health (WHO, 2014; Avery, 2013; Murimi *et al.*, 2010).

### **2.3.2 Benefits of breastfeeding for the infant**

Breast milk lays the foundation for a healthy future. It has a natural, cost-effective and evidence-based nutritional composition that promotes the optimal wellbeing and survival of infants, therefore a possible reduction in future health care cost (Oche *et al.*, 2011; UNICEF, 2006). The benefits of breastfeeding extend beyond the mother and infant and facilitate positive health and economic changes (Murtagh & Moulton 2011). Colostrum is the first milk immunisation an infant receives as it contains high levels of antibodies, vitamin A, and other protective factors which strengthen the infant's immune system and reduce the risk of neonatal death (Hajeeboy *et al.*, 2014; Lambert *et al.*, 2013). Breastfeeding lowers the risk of allergy, food intolerance, diabetes, asthma, malaria, ear infection, diarrhoea, respiratory diseases and eczema and improves brain development (Bowman, 2013; Lamberti *et al.*, 2013; Ibadin *et al.*, 2012; Murimi *et al.*, 2010; Ukegbu, 2010).

### **2.3.3 Benefits of breastfeeding to the mother**

Breastfeeding has health benefits for breastfeeding women. The short term benefits relate to increased oxytocin levels, the hormone that helps the uterus to contract, thereby expelling the placenta and reducing postpartum bleeding (Dermatas, 2012; Radaelli *et al.*, 2012). It also contributes to maternal-infant bonding. The long term benefits of breastfeeding for breastfeeding women includes a reduced risk of developing uterine, breast and endometrial cancers, as well as osteoporosis, Type 2 diabetes and cardiovascular diseases (Avery, 2013; Davis *et al.*, 2012; Sule, 2011; Huo *et al.*, 2008). Breastfeeding serves as the physiological basis of a Lactation Amenorrhea Method (LAM) of contraception which delays the return of a woman's menstrual cycle and hence the return of fertility (WHO, 2014; Avery, 2013). This however, is strongly associated with the duration of breastfeeding (Esterik & Buttler, 2009). Studies have shown that breastfeeding is associated with a more rapid postpartum weight reduction, especially if practiced exclusively during the first six months (Sanusi & Falana, 2013; Kramer & Kakuma, 2012; Baker *et al.*, 2008).

Antenatal care is very critical during pregnancy; hence it increases the likelihood of early breastfeeding initiation. Mothers who did not attend antenatal clinic during pregnancy tend to have a delayed initiation of breastfeeding (Ogunlesi, 2010). Early breastfeeding is one of the most significant interventions for improving child survival (WHO, 2009). According to UNICEF (2013), breastfed infants have at least a six times greater chance of survival in the

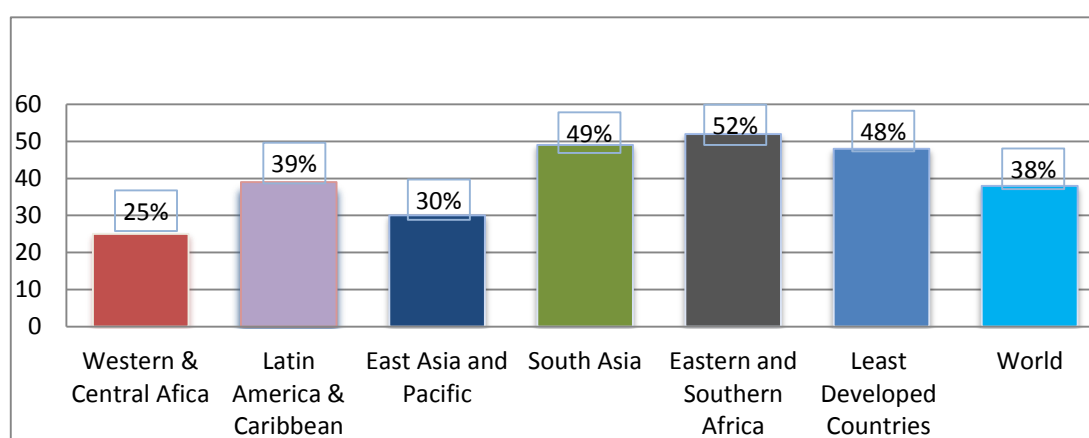
early months of life than non-breastfed infants. Breastfeeding plays a vital role as breastfed infants and young children may be less likely to suffer from infectious diseases which could have a positive impact on their mother's work productivity (Murtagh & Moulton, 2011).

#### **2.3.4 Global infant feeding practices**

Levels of appropriate infant feeding practices, such as early initiation of breastfeeding within one hour; EBF for the first six months of life and introduction of nutritionally adequate and safe complementary foods at six months together with continued breastfeeding up to two years of age or beyond (UNICEF, 2015; WHO, 2014), have declined in many parts of the world, including low-middle income countries as infant feeding practices are dependent upon a vast number of economic, social and cultural factors (Ghuman *et al.*, 2009; Mushaphi *et al.*, 2008). Studies have shown that breastfeeding is a time-dependent practice influenced by different factors, thereby making initiation and cessation of breastfeeding vary among lactating mothers across the globe (Setegn *et al.*, 2011; Alemayehu *et al.*, 2009). According to UNICEF (2015), the global EBF rates still remains low with only 38 per % of infants under six months being exclusively breastfed, even though the rates have increased over the past 20 years. The UNICEF report also showed an increase in EBF rates Bangladesh from 49 % in 2011 to 66 % in 2014, and early breastfeeding initiation improving from 49 % to 77 %. While, in Burkina Faso, there was an increase of EBF rates from 25 % to 47 % between 2011 and 2015. In Ghana, EBF rates have increased from 46 % in 2011 to 52 % in 2014 and early breastfeeding initiation increased from 46 % to 55.6 % (UNICEF 2015). The Ministry of Women and Child Development in India, conducted a national survey in 2013-2014 and reported that early initiation of breastfeeding increased from 24.5 % in 2006 to 44.6 % in 2014 (Government of India, 2015).

Studies on infant and young child feeding practices showed that 27 out of 98 countries had an EBF greater than or equal to 50 % and without any decline over the past five years. Among these twenty-seven countries surveyed, thirteen had a significant increase in EBF rates. Figure 2.1 show that globally, only 38 % of infants below six months of age were exclusively breastfed, while West and Central Africa had the lowest EBF rates at 25 %, with Eastern and Southern Africa at 52 %. East Asia and the Pacific had a prevalence of 30 %, Latin America

and the Caribbean 39 %, South Asia 49 % and the least developed countries had a prevalence of 48 % of infants being exclusively breastfed (UNICEF, 2014).



**Figure 2.1:** The global percentage of infants under six months of age who are exclusively breastfed by region

Source: UNICEF 2014: Based on MICS, DHS and other nationally representative surveys

Despite the recommendation for EBF up to the age of six months, the prevalence of EBF at six months of age is globally low (Cavalcanti *et al.*, 2015). In many developing countries such as India, high breastfeeding rates and a long duration of breastfeeding was reported to still be the norm. However, EBF is rare due to cultural practices associated with lactation and breastfeeding such as withholding colostrum and giving pre-lacteal feeds (Bandyopadhyay, 2009). A Cochrane review found that there was no benefit related to giving new-born infants water or glucose. On the contrary, doing so could negatively affect the duration of breastfeeding (Becker *et al.*, 2012). The infant feeding practice of providing water or tea to infants in the first months of life led to 1.4 million deaths globally and represented 10% of the disease burden in children younger than five years of age (Black *et al.*, 2008).

Factors such as level of education, employment, place of delivery, family pressure and cultural values influence decisions regarding the initiation and duration of breastfeeding in low-income countries (Henry *et al.*, 2010; Ogunlesi, 2010; WHO, 2010a). Breastfeeding practices and experiences are context bound and culture dependent (Spencer, 2008). A large number of children, especially in the developing world have never experienced appropriate



feeding routines because socio-cultural influences regarding acceptable infant feeding practices are diverse and complex and can therefore vary greatly from one society to another (Solomon, 2010).

Breastfeeding was reported to be universal and prolonged in India, both in urban and rural areas. However, EBF was not common because of cultural practices (Bandyopadhyay, 2009; Oommen *et al.*, 2009). The delay of breastfeeding initiation is derived from the belief that colostrum was considered to be harmful to the infant's health and therefore discarded (Bandyopadhyay, 2009; Singh *et al.*, 2007). Therefore, infants were given pre-lacteal feeds that included hot water, sugar water, honey, mustard oil, tea, or goats/cow's milk before being put to the breast. About 16.5% of mothers initiated breastfeeding within an hour of giving birth in rural West Bengal, while approximately 47.9% did not initiate breastfeeding until at least 24 hours after giving birth (Bandyopadhyay, 2009). It was reported that in India, countrywide, only 23.5% of mothers initiated breastfeeding within the first hour after delivery (Patel *et al.*, 2010).

A study conducted by Patel *et al.* (2015) found that sites surveyed in India had the highest EBF rates at the 42-day follow-up visit (Belgaum 99.5% & Nagpur, 99.0% respectively) as opposed to other sites including Kenya, Zambia, Pakistan, Argentina and Guatemala. EBF declined to 74% by one month post-delivery and 46% at four months. According to the Ministry of Health and Family Welfare (2008), the Third National Family Health Survey (NFHS III) in India reported that about 46.3% of infants were exclusively breastfed at five months. EBF rates in India were 46% at less than six months of age in 2005-2006, as a result of traditional practices influencing the practice of EBF (UNICEF, 2013).

Different sources showed that the majority of mothers in India started complementary feeding at the recommended age of six months (Rao *et al.*, 2011; Aggarwal *et al.*, 2008). However, contradictory findings were reported by another study, indicating that approximately 78% of the mothers were aware when complementary feeding should be introduced, however only 50% practiced it (Basnet *et al.*, 2015). Studies conducted in Taiwan & West Bengal, India found that 50% & 55% of mothers respectively, introduced complementary foods at six months (Lin *et al.*, 2011; Sinhababu *et al.*, 2010).

### 2.3.5 African continent

Breastfeeding is widely practiced in Africa and it is the culturally acceptable way of feeding infants, thus leading to high initiation rates and a longer duration of breastfeeding (Njai & Dixey, 2013). However, authors such as Ajibade *et al.* (2013); Ugboaja *et al.* (2013), found that EBF was not culturally acceptable in some areas in Nigeria. EBF is rare, while prelacteal feeds are usually given before breastfeeding commences and early supplementation with water, teas, juices or other fluids or solids is the norm in Africa, including Gambia, Kenya and Nigeria (Sholeye *et al.*, 2015; Danso, 2014; Njai & Dixey, 2013). Nigerian mothers seldom adhere to recommendations regarding appropriate infant feeding, i.e. practicing EBF, as only 17% of infants under the age of six months were EBF and more than half of infants received water in addition to breast milk in the first three months of life [Nigerian Demographic and Health Survey (NDHS), 2013]. Studies conducted in Kenya & Nigeria reported that social and economic factors place some mothers under pressure to introduce complementary food earlier than the recommended age (Sholeye *et al.*, 2015; Ministry of Health – Kenya, 2011). Early initiation of breastfeeding among women in Southwest Nigeria was 12.7% in 2003 and then gradually increased to 35.5% in 2008 (National Population Commission & ICF Macro, 2009). As mentioned above that education, employment, place of delivery, family pressure and cultural values had a major role in the initiation and sustainability of breastfeeding among mothers (Henry *et al.*, 2010; Ogunlesi, 2010; WHO, 2010a).

EBF was also reported to be uncommon in Kenya. However, there had been an increase from 13% to 32% in 2003 for infants under six months of age (Kenya National Bureau Statistics & ICF Macro, 2010). The EBF rate in Kenya is among the lowest in the East Africa region, where the prevalence was 47% (UNICEF, 2011). There had been a consistent increase in the prevalence of EBF in Ethiopia, from 47% in 2000 to 49% in 2005, then gradually to 52% in 2011 (Yeneabat *et al.*, 2014). According to UNICEF (2009e and 2011a), the prevalence of EBF in the Southern Africa region was 39%, whereas West and Central Africa had the lowest EBF rates at 25%. Study conducted in urban and rural areas of Southern Katanga in the Democratic Republic of Congo 2013, found that mothers who exclusively breastfed their infants up to six months were respectively 44.2% and 14.3% in urban areas and in rural areas (Lubala *et al.*, 2016).

### 2.3.6 Urban Black South Africans

It was reported that South Africa has a very high breastfeeding initiation rate of 75 to 97% (Ghuman *et al.*, 2009; Mhlanga, 2008), even though EBF was found not to be a common practice (Ijumba *et al.*, 2014). A study comparing two sub-districts in Mpumalanga province, found that the initiation of breastfeeding was practiced more at Emalahleni sub-district compared to Mbombela, even though Emalahleni rates were lower than expected because the health institutions were baby-friendly accredited (Van der Merwe *et al.*, 2015). Approximately 90% of mothers initiated breastfeeding within the first hour after delivery in four provinces including North West, Gauteng, Free State & Eastern Cape (Siziba *et al.*, 2015). The above findings show an improvement in the early initiation of breastfeeding.

Different data sources reported that between eight per cent and twenty-five per cent of infants were exclusively breastfed at six months (Mhlanga, 2008). SANHANES-1 reported that EBF rates decreased in 2012 to about seven per cent of infants below the age of six months (Shisana *et al.*, 2013). Although EBF rates are increasing in SA, it is decreasing as the infant age approaches six months. Phenomenon was confirmed by several studies (Seonandan & McKerrow, 2016; Ijumba *et al.*, 2014; NDOH *et al.*, 2007). A study conducted in twenty-three hospitals in KwaZulu-Natal found that the majority of infants under the age of six months were exclusively breastfed. However, only 36% of these infants older than three months were still exclusively breastfed (Seonandan & McKerrow, 2016). Approximately 48% of infants received EBF up to a mean age of two months (8.3 weeks) with a decrease over time, resulting in less than 20% being breastfed exclusively by the age of six months in a study conducted in the four provinces of SA, namely, North West, Free State, Gauteng & Eastern Cape (Siziba *et al.*, 2015). In the Limpopo province, approximately eight per cent of infants were exclusively breastfed by two to three months of age (Mushaphi *et al.*, 2008). Table 2.1 below presents a summary of low EBF rates which are very low and the age at which complementary foods were introduced, as was recorded for different areas since 2007 (Siziba, 2014). From the table, it is evident that the age when solids were introduced was earlier than the recommended six months.

**Table 2.1:** Summary of EBF rates and introduction of solids to infants in South Africa

Reference	Year of	Area	Sample	EBF up to 6	Age at
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	publication		size (N=)	months (%)	introducing solids
SADHS (2003)	2007	South Africa	2120	8%	<2 months
Faber & Benade	2007	KZN	505	11% (4 months)	3.3 months
Mushapi <i>et al.</i>	2008	Limpopo	185	7.60%*	2 months
UNICEF report (2000-2006)	2008	South Africa	National	7%#	Not reported
Shisana <i>et al.</i>	2010	South Africa	508	25.70%	Birth
Ladzani <i>et al.</i>	2010	Mpumalanga	815	35.60%*	3 months
Goga <i>et al.</i>	2012	PMTCT sites	783	16%	3 weeks
Van der Merwe	2013	Mpumalanga	218	35.70%	45 days
Shisana <i>et al.</i>	2013	South Africa	243	7%	3 months
Kassier & Veldman	2013	Free State	189	Not reported	2 months
Osborne	2013	Eastern Cape	43	2%	1 month
Goosen	2014	Western Cape	140	6%	3 months

#Data refers to years of periods other than those specified in the column heading.

\* EBF calculation included all infants in the study.

Siziba *et al.* (2015) conducted a study in four provinces (North West, Free State, Gauteng and Eastern Cape) in SA, reported that complementary foods were introduced at one to two months of age as a result of the held perception that the mother did not have enough breast milk. Approximately 15.2% of the infants in a study conducted in Limpopo were introduced to solid foods at the age of two months or less and 43.2% at the age of three months (Mushaphi *et al.*, 2008).

## 2.4 HEALTH PROBLEMS ASSOCIATED WITH EARLY INTRODUCTION OF COMPLEMENTARY FOODS AND FLUIDS

Du Plessis *et al.* (2013); Clayton *et al.* (2013); Huh *et al.* (2011); Kuo *et al.* (2011); Kimani-Murage *et al.* (2011); & ESPGHAN Committee on Nutrition (2008), agree with the WHO recommendation that the appropriate and adequate introduction of complementary foods should begin at six months of age. Despite this recommendation, solid foods are introduced at ages younger than six months across both developed and developing countries.

#### **2.4.1 Early cessation of breastfeeding**

Danso (2014) reported that mother's socio-economic status, culture and tradition have an influence on the early introduction of complementary foods. Various studies reported that breast milk insufficiency or perceived insufficiency led to the early introduction of complementary foods (Zulliger *et al.*, 2013; Arts *et al.*, 2011; Nor *et al.*, 2011; Ghuman *et al.*, 2009). This practice could result in the early cessation of breastfeeding. Another study compared Caucasian, African American and Hispanic mothers who also reported to indicate insufficient breast milk as the reason for early breastfeeding cessation (Hurley *et al.*, 2008). Other studies agree with the phenomenon of "insufficient milk syndrome" which results in early termination of breastfeeding (Njai & Dixey, 2013; Oommen *et al.*, 2009).

According to Hauck, Jennifer, Dhaliwal & Butt (2011), some mothers stopped breastfeeding at nine weeks while others before three weeks post-delivery in Western Australia. The amount of breast milk ingested by the infant is reduced when solid foods or other fluids are introduced before six months of age. In addition, this has a negative impact on the absorption of nutrients from breast milk (UNICEF, 2011). Goga *et al.* (2012), add that introducing complementary feeding too early causes infants to self-regulate their energy intake by decreasing their breast milk intake, resulting in the abrupt cessation of breastfeeding. Hence, the early introduction of complementary foods affects breastfeeding initiation and sustainability (WHO, 2010a).

#### **2.4.2 Increased incidence of infection and malnutrition**

EBF is the most effective preventative strategy to reduce incidence of malnutrition and child mortality (WHO, 2010c). Breast milk contains antibodies and essential nutrients necessary for the promotion of health and adequate development of infants and very young children (Hajeebhoy *et al.*, 2014). Colostrum is the first immunisation received by an infant. It contains high levels of antibodies, vitamin A, immunoglobulins, lactoferrin and lysozyme that strengthen the infants' immune system, help reduce and protect against neonatal septicaemia, diarrhoea, and acute respiratory infections, thus reducing infant mortality rates (Ismail & Sulaiman, 2010). It is therefore surprising that globally, the initiation of breastfeeding is delayed in many countries. The majority of the findings reported that colostrum was discarded because it was considered "dirty" and a "harmful" fluid that will affect a child's health (Patel *et al.*, 2015).

In many parts of the world, pre-lacteal feeds were given to infants before breastfeeding was initiated. This practice is associated with various beliefs such as cleansing the infant's stomach of the "swallowed waste" during pregnancy and impurities in the womb (Khanal *et al.*, 2013; Bandyopadhyay, 2009). Pre-lacteal feeding and the early introduction of complementary foods are an important cause of malnutrition (Dili, 2008). The majority of mother's initiate complementary feeding very early due to the influence of family, friends and culture (Njai & Dixey, 2013). One study conducted on low income working mothers in United State of America, found that the early introduction of cereals was related to the belief that the cereal will make the infant sleep longer throughout the night (Olson *et al.*, 2010). Women from Sultanpur, West Bengal, India, introduced supplementary foods (water, animal milk, and infant formula) from the first month of life (Bandyopadhyay, 2009).

Initiating supplementary feeds during the first six months of life increases the risk of diarrhoea and pneumonia, which in turn contributes to malnutrition and further infant morbidity and mortality (Alzaheb, 2016; Kimani-Murage *et al.*, 2011; Black *et al.*, 2008). In addition, infants are exposed to infectious diseases when given complementary foods before the age of six months. This can affect their growth and development. Non-exclusively breastfed infants were reported to be six times more likely to die due to diarrhoea or respiratory infections than infants who received EBF (UNICEF, 2009). The early introduction of supplementary feeds and mixed feeding are the most common infant feeding practices in South Africa, both of which increase the risk of infections, diarrhoea and

malnutrition as well as reducing the amount of breast milk consumed by infants (Ijumba *et al.*, 2014; Mhlanga, 2008; Mushaphi *et al.*, 2008).

Inappropriate infant feeding practices are associated with malnutrition which has resulted in an estimated 54% of under-five deaths in developing countries (Solomon, 2010). UNICEF (2008) reported that in sub-Saharan Africa, 24% of children younger than five years were moderately or severely underweight, while in West, Eastern and Southern Africa the prevalence of moderate and severe underweight was 24% and 23% respectively. Poor infant feeding practices including lack of EBF, early introduction of complementary foods and insufficient dietary diversity of complementary foods is related to stunting and under-nutrition (Bhutta *et al.*, 2013). A delay in the early initiation of breastfeeding may be related to an increased risk of mortality due to infection (Hajeebhoy *et al.*, 2014; Khan *et al.*, 2014; Debes *et al.*, 2013; Edmond *et al.*, 2007). It was also reported that low birth weight or sick infants are more likely to have feeding problems, including the inability to initiate early breastfeeding. Therefore, exposure to breast milk may be even more crucial for the reduction of morbidity and mortality outcomes including infection (Choi, 2014).

#### **2.4.3 Early return of fertility**

Women who practice EBF for the first months after delivery have a greater likelihood for a delay in the resumption of ovulation and the return of the menstrual cycle. This serves as the physiological basis of the LAM of contraception (Solomon, 2010). This means when mothers are not breastfeeding exclusively, they may be at risk of falling pregnant within the first months post-delivery, which in turn may compromise their health and nutritional status.

#### **2.4.4 Increased incidence of non-communicable diseases**

EBF reduces the risk of childhood non-communicable diseases such as obesity and diabetes (Brown, 2014; Davis *et al.*, 2012; UNICEF, 2010). Huh *et al.* (2011) & Kuo *et al.* (2011) also agreed that the early introduction of complementary foods may increase the risk of some chronic diseases such as diabetes, obesity, eczema and celiac disease. In a systematic review conducted by Pearce *et al.* (2013) it was found that the introduction of solids at younger than

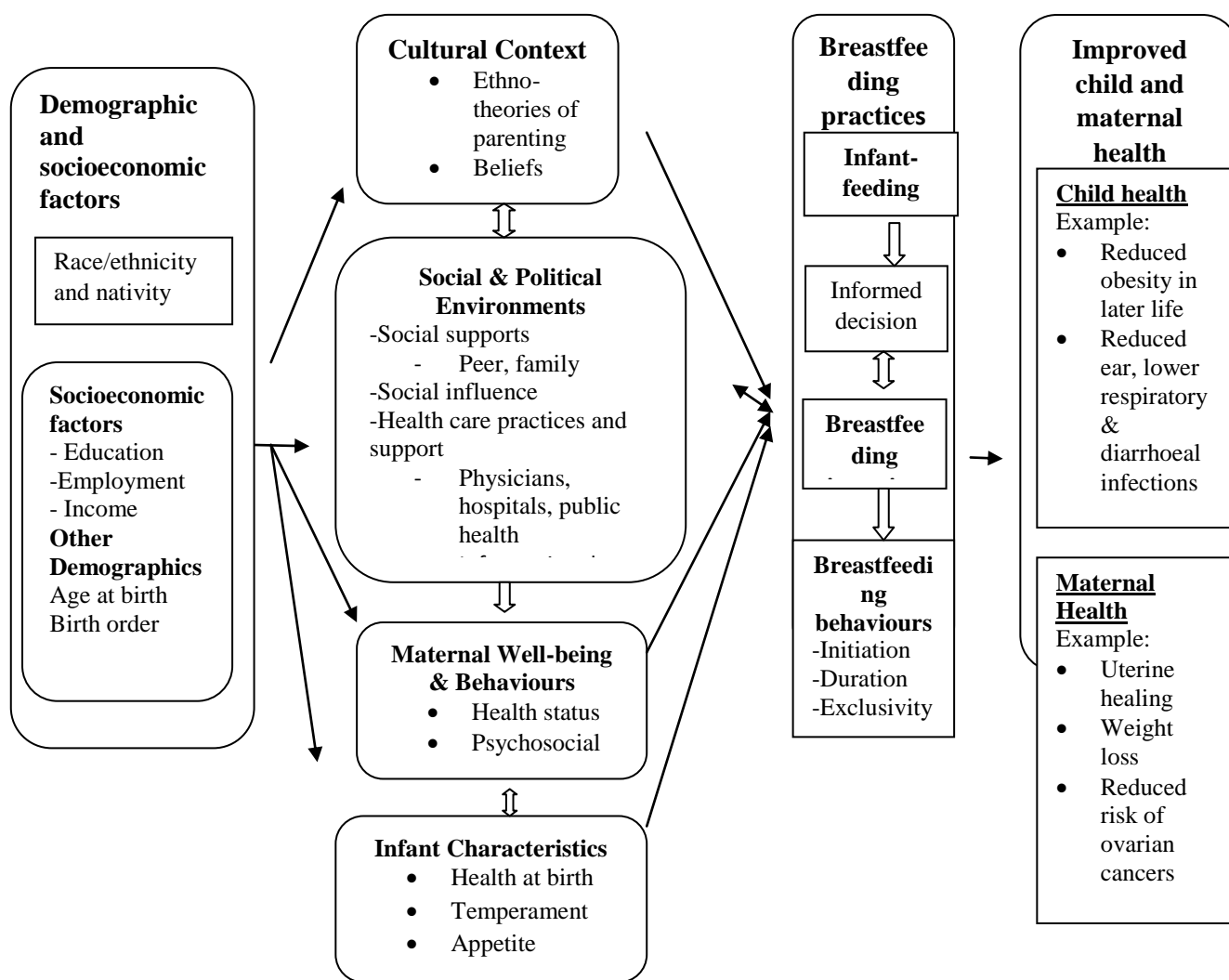
six months (especially before four months of age), may result in an increased risk of infants becoming overweight in childhood.

## **2.5 FACTORS INFLUENCING THE PRACTICE OF EXCLUSIVE BREASTFEEDING**

Several studies have identified factors associated with EBF. A mother's implementation of appropriate infant feeding practices is greatly influenced by her surroundings, including family, friends, support provided by formal health services and other community-based groups, as well as the mother's attitude towards and perception of breastfeeding, its nutritional value, and the satiety of the infant (Kassier & Veldman, 2013; Meedya *et al.*, 2010). Infant feeding practices also depend on a vast number of economic, social and cultural environmental factors in which women live (Ghuman *et al.*, 2009; Mushaphi *et al.*, 2008). Numerous studies have supported the association between social support and breastfeeding initiation and duration. Thus, having friends who successfully breastfed and seeing family and friends breastfeed, increases the likelihood of a mother to breastfeed (Wambach & Cohen, 2009).

Later in this chapter, a mother's knowledge, attitude, perception and beliefs as well as the influence of family and friends will be discussed. Some studies found that women were unable to express their views in responses to a survey they participated in or felt uncomfortable to report on less socially acceptable or "mother-driven" reasons for not breastfeeding or the early cessation of breastfeeding (Lee *et al.*, 2009; Li *et al.*, 2008). Therefore, mothers tend to report reasons beyond their control such as not having enough milk. The factors influencing low-income mother's decision to breastfeed exclusively or not breastfeed is outlined in Figure 2.2 and some of these factors will be discussed below.





**Figure 2.2:** Factors that influence exclusive breastfeeding

Source: Lee *et al.* (2009, pp14).

### 2.5.1 Knowledge, attitudes, perceptions and cultural beliefs

According to UNICEF (2012); Nandan & Yunus (2009), knowledge plays a critical role in infant and young child feeding, such as early initiation of breastfeeding, EBF for six months, and timely introduction of age appropriate complementary feeding, all which are key interventions in preventing childhood malnutrition and associated mortality.

#### Knowledge, attitudes, perceptions and cultural beliefs of Indians

Indian women strongly believe in their traditions, taboos and cultural norms and they have been conditioned to maintain and observe them as well as to pass them on to the next

generation. Certain social interactions outside the household are controlled by women since they are the principal actors in taboos (Maharaj & Bandyopadhyay, 2013; Bandyopadhyay, 2009). The introduction of prelacteal feeds is a known barrier to EBF (Ulak *et al.*, 2012). The practice of prelacteal feeding is reported to be a major cultural practice that is still predominant in many places throughout South Asia regions (Moussa *et al.*, 2010; Bandyopadhyay, 2009).

According to some Hindus, colostrum is discarded because of a belief that its thickness and viscosity may be difficult for the new-born to swallow. In addition, there are beliefs that the first breast milk is “old” from being stored in the breasts for the duration of the pregnancy (Bandyopadhyay, 2009), and that mothers’ milk does not “come” at the childbirth, but flows two to three days later (Patel *et al.*, 2015). Another belief is that colostrum is a harmful yellowish fluid, therefore which is discarded and hence delays the initiation of breastfeeding. The findings of studies conducted in India showed that the major reason reported by mothers to not exclusively breastfeed, was “insufficiency of milk”. Indian mothers do not exclusively breastfeed due to traditional practices (Maharaj & Bandyopadhyay, 2013; Bandyopadhyay, 2009). EBF rate in India was 46% at less than six months in 2005-2006 (UNICEF, 2000-2006). According to McKenna & Shankar (2009), it is a norm for Hindu and Muslim communities to feed sweets to new-borns as this practice is deeply rooted in their cultural and religious practices.

A study conducted in West Bengal India by Bandyopadhyay (2009) found that the majority of mothers in the study sample believed that breast milk did not provide adequate nutrition and sustenance for their infants. The health and well-being of women are at high risks because of many practices and/or factors expected from them. These include practices relating to food prohibitions and food avoidance, eating less during pregnancy; the household status of women and society at large, physical workload, and other social, economic and cultural discrimination. All these factors have an impact on the mothers’ ability to breastfeed after pregnancy without harming their health (Bandyopadhyay, 2009).

According to Islamic tradition, women are not allowed to show any parts of the body in front of non-family members. This can result in the early introduction of infant formula, especially as they face having to return to school or work or feed in more public locations. Similar

findings from other studies showed that some mothers from other cultural groups view breastfeeding in public as embarrassing and usually stop breastfeeding when returning to school or work (Al-Binali, 2012).

### Knowledge, attitudes, perceptions and cultural beliefs of African's

A lack of breastfeeding knowledge and/or experience, the absence of public facilities within which to breastfeed, father's involvement and working mothers were all factors influencing exclusive breastfeeding on a study conducted on mothers with infants aged 0 to 6 months in the Cape Metropole, South Africa (Sowden *et al.*, 2009). Infant feeding, including the initiation of breastfeeding and providing colostrum is influenced by cultural beliefs (Agunbiade & Ogunleye, 2012). A study conducted in Calabar, Nigeria found that 80 % of mothers were aware of EBF and 54 % had an understanding of the meaning of EBF, while 32 % lacked knowledge regarding when to wean the infant (Essien *et al.*, 2009). Similarly, in Southwest Nigeria there was a high level of breastfeeding awareness (Agunbiade & Ogunleye, 2012).

Forty-one per cent of mothers understood the importance of breastfeeding while six percent did not know in a study conducted in four provinces across South Africa (Siziba *et al.*, 2015). A study conducted in Omin, Calabar, Nigeria by Nwachukwu & Nwachukwu (2007) showed that approximately 71% of the respondents were afraid to breastfeed because they believed that they will lose their attractive figures i.e. 'body shape'. Seventy-six per cent of women reported that they had knowledge regarding breast milk sufficiency and that the more the infant suckled, the better the breast milk production in Calabar, Nigeria (Essien *et al.*, 2009). Twenty-two per cent of the respondents had negative attitudes/beliefs about the cost of breastfeeding because they believed that a lactating mother needs money to procure nourishing foods (Essien *et al.*, 2009).

The Fulani women stated that they did not initiate breastfeeding immediately after birth but waited for more than two days to initiate breastfeeding of their infant (Oche *et al.*, 2011). A study conducted in Nigeria found that the average level of breastfeeding initiation immediately after delivery was 45%, and within the first two hours after birth was 29% (Agunbiade & Ogunleye, 2012). In rural Yoruba, Nigeria some mothers perceived colostrum

as stale milk because it had been kept in the breasts for the duration of the pregnancy (Salami, 2008). It was stated that colostrum had a bad colour and was considered to have no nutrients; hence the infants were given cow's milk and viindi (water that has been used to wash off passages of Koran written in charcoal on a tablet) instead of colostrum (Kakute *et al.*, 2005). The belief that colostrum is impure and dangerous to the infant has also been documented in a Gambian study (Njai & Dixey, 2013).

A study conducted in Southern Africa showed that traditional medicines were used to clean the infant's stomach in early infancy as part of cultural practices. It is believed that these traditional medicines protect infants from diseases (Buskens *et al.*, 2007). Mothers also believed that water helps to clean the urine of the infant and prevents hiccups and dehydration (Osborne, 2013). Research conducted among Xhosa-speaking mothers and grandmothers in the Eastern Cape, South Africa, reported the belief that colostrum is dirty milk and not healthy for infants, therefore it was discarded (Osborne, 2013).

The main challenge regarding infant feeding practices in South Africa includes the early introduction of foods, mixed feeding and failure to breastfeed exclusively (Siziba *et al.*, 2015). Mothers introduced complementary foods as early as in within the first month, citing the reason that their breast milk was not enough for the infant (Van der Merwe, 2013). There had been a syndrome called "insufficient milk" reported among mothers in various studies conducted among South Africa mothers which led to mix feeding and/or early introduction of complementary foods (Zulliger *et al.*, 2013 conducted a study in Cape Town; Nor *et al.*, 2011 in KZN & Western Cape; Ghuman *et al.*, 2009 in rural district KZN). This belief was associated with reduced rates of breastfeeding in the urban areas (Siziba, 2014). Similar findings showed that the majority of mothers gave their infants either formula or other liquids (water, tea or juice), in addition to breast milk, while others gave foods because they believed that their breast milk alone was insufficient and some mothers were returning to work (Siziba *et al.*, 2015).

Women from the Northwest Province in Cameroon believed that breast milk was an incomplete food source as it only satisfies the infant's thirst and does not increase the infant's weight. It was also believed that when an infant cry, he/she wants more than breastmilk, and the infant's intestines need something solid. Mothers believed that giving the infant breast

milk and other foods and/or liquids made the infant grow and gain weight (Kakute *et al.*, 2005). Mothers were breastfeeding their infants for many reasons including when the infant cries, to quench thirst, to feed and to make the infant fall sleep. Other foods were given to the infant earlier than six months of age to prevent hunger and to keep the infant happy when mothers felt breastfeeding alone did not make the infant full (Gitonga, 2014; Siziba, 2014). Studies conducted in Kenya showed that breast milk insufficiency was perceived as the reason for discontinuing EBF (Wanjohi *et al.*, 2017; Gewa & Chepkemboi, 2016; Matsuyama *et al.*, 2013; Kimani-Murage *et al.*, 2011; Ochola, 2008).

Another study reported similar findings to what was reported above in that Gambian mothers had a belief that exclusive breastfeeding is dangerous to the infant. Therefore, an infant needs to drink water immediately after birth because it is believed that an infant may be thirsty and could eventually die. Giving water after delivery was perceived to make an infant look healthy (Njai & Dixey, 2013). Various studies reported different beliefs and perceptions around water being given to new-borns. The prevalence of pre-lacteal feeding was 32.2% in a study conducted in twenty-two countries in sub-Saharan Africa, with plain water (22.1%), milk other than breast milk (5.0%) and sugar or glucose water (4.1%) reported as the main pre-lacteal feeds (Berde & Ozcebe, 2017). Similar findings were reported in Ethiopia, where majority of mothers practiced the pre-lacteal feeding to sustain the tradition (Tarika *et al.*, 2016). Agunbiade & Ogunleye (2012) found that water or introducing semi-solids together with breast milk would make infants grow faster so that their mothers would be able to go back to work. Similar findings were reported where infants received water or semi-solids before the age of six months due to the fear that breast milk, alone was not sufficient to satisfy the need for water by the infant since infants were not breastfed on demand, as is the case in many developing countries (Jones *et al.*, 2014; Tamiru *et al.*, 2013; Mennella & Trabulsi, 2012; Whalen & Cramton 2010). Another study conducted in Kamba Woreda, South West Ethiopia reported that majority of mothers could not express breast milk to feed their infants at home while they at work due to lack of time. Therefore, mothers believed that infants were exposed to hunger and thirst, which resulted in the early introduction of solids and giving water to infants (Agedew *et al.*, 2014).

### **2.5.2 Influence of family, friends and health workers on infant feeding decisions**

A study conducted in KZN showed that in some cases, mothers tend to make their own decisions when it comes to feeding their infants. Forty-eight per cent of the mothers decided to stop breastfeeding and started to introduce formula at six months. This decision was made by mothers without the influence from other individuals (Swarts *et al.*, 2010). Various researchers reported barriers associated with successful breastfeeding including sore nipple/breast, insufficient breast milk, infants refusing to suck on the breast, (Jager, 2012; Raffle *et al.*, 2011), maternal illness, breast infection (Doherty *et al.*, 2012), stress, EBF not being culturally acceptable, partners not allowing mothers to breastfeed (Ugboaja *et al.*, 2013) and delayed milk production post-delivery (Mutekanga & Atekyereza, 2007). Social support is very important for breastfeeding mothers to overcome any challenges associated with breastfeeding (UNICEF, 2013) and they are likely to breastfeed for longer with support (Wambach & Cohen, 2009).

#### Family members (grandmothers) and friends

Grandmothers and mothers-in-law are known to be the culture custodians with more influence on infant feeding practices and child health (Cumber *et al.*, 2016). Family and friends have an influence on mother's decisions with regards to infant feeding (Rossman, 2007). Research has shown that it is important to involve family members such as grandmothers in supporting breastfeeding (Bhutta *et al.*, 2013). According to Ku & Chow (2010), mothers' in-law had an influence regarding the support of their daughter in-law's ability to breastfeed and continues with breastfeeding for longer. Various researchers reported that when grandmothers have an understanding of recommended infant feeding practices, they play a significant role on encouraging mothers to follow the recommendations (Grassley & Eschit, 2008; Kerr *et al.*, 2008). Findings showed that peer support, especially for mothers without support from health workers, plays an important role. It is also approved by the culture of the mother as it promotes and supports breastfeeding for women from different socioeconomic backgrounds (Olson *et al.*, 2010; Chung *et al.*, 2008). Breastfeeding initiation, duration and EBF increased significantly among women who received support from a peer counsellor or other lay person (Chung *et al.*, 2008; Britton *et al.*, 2007). In a Nigerian study, grandmothers and mother-in-law's were more influential on breastfeeding practices. Hence,

some of them felt that solid foods should be introduced early and that infants should be given herbal concoctions, as it was believed that these were better than giving breast milk only (Agunbiade & Ogunleye, 2012).

Another study conducted in Nigeria supports the above findings, namely that grandmothers' own infant feeding experience and knowledge can influence mothers' decisions to initiate and continue breastfeeding or not (Grassley & Eschiti, 2008). Grandmothers believed that if the infant does not drink water early, it makes the infant aggressive later. In additions, grandmothers had an influence on the cultural practice of discarding colostrum before the initiation of breastfeeding. Even though grandmothers and husbands are reported to be the major barriers to the early initiation of breastfeeding, on the other hand they provided support to breast feeding mothers by providing information the provision of food at household level and training of young mothers on infant food preparation. The study also reported that grandmothers played a major role in influencing the early introduction of complementary foods as they have been found to be very powerful decision makers in the home (Njai & Dixey, 2013). In another study, exclusive breastfeeding was described as an investment in an infant's life by some grandmothers and breastfeeding mothers (Agunbiade & Ogunleye, 2012).

#### Health care workers

Mothers should be receiving information on infant feeding during antenatal care, as that is where adequate counselling about breastfeeding could significantly improve breastfeeding rates (Sapna *et al.*, 2009). Health professionals have an influence on the mother's decisions and practices, because their support and counselling can improve breastfeeding rates, especially in relation to the early initiation as well as the duration of breastfeeding, and enhancing mother's confidence in their ability to breastfeed (Britton *et al.*, 2007). When the health care workers are informed about the advantages of breastfeeding, their role is significant when it comes to the promotion of breastfeeding (Hannula *et al.*, 2008). Maharaj & Bandyopadhyay (2013) agrees with the findings that most women, who are Indian immigrants in Melbourne, Australia, had overall positive experiences with health professionals. However, according to Brown *et al.* (2011), many women in Swansea, United Kingdom, reported that they could not receive enough or accurate information from health

workers. This finding is in agreement with Lamontagne *et al.* (2008), who indicated that health care workers in Quebec & Trois-Rivieres, Canada may provide confusing breastfeeding information and recommendations to mothers, which could have a negative influence on breastfeeding.

Post natal support by health workers had been identified as a way of assisting mothers with breastfeeding problems and enhances their confidence, thus increasing the duration of breastfeeding (Brown *et al.*, 2011; Ahmed, 2008). A study conducted in Niger, found that health professionals were encouraging skin-to-skin contact after delivery and were more concerned with disinfecting the equipment and caring for the mothers and infants as well as women in labour. However, there was a lack of support regarding the initiation of breastfeeding within the first thirty minutes after delivery. Health professionals did not offer assistance to mothers, even when they used incorrect feeding positions in front of them (Abba *et al.*, 2010). Maharaj & Bandyopadhyay (2013) reported that some health workers were creating confusion of mothers with conflicting information regarding breastfeeding, including feeding schedules as well as demand feeding and as well as offering infant formula when unsure about the adequacy of their milk supply. Mothers were also getting confused and stressed when they were shown more than one position to breastfeed.

Breast and/or nipple pain, poor milk intake, and challenges of milk supply were reported to be the result of poor support with latching the infant on the breast (Radzyninski & Callister, 2012). Health workers may advise mothers to give infant formula to breastfed infants when the infant was not gaining enough weight (Flaherman *et al.*, 2015). However, research has shown that mothers who consulted health workers were more likely to exclusively breastfeed as opposed to those that did not (Solomon, 2010). Training and/or initiatives regarding the importance of the early initiation of breastfeeding and EBF for six months of health workers had an influence on the high EBF rates (Patel *et al.*, 2015), i.e. health care workers have appropriate information and gained counselling skills which build mother's confidence on breastfeeding.

Health care workers themselves should receive current evidence-based knowledge on infant feeding and skills to provide quality counselling and adequate support to mothers, grandmothers, husbands, relatives and caregivers. Breastfeeding education and support



during the antenatal period was shown to improve the rates of EBF (NDOH, 2013). The IYCF policy states that this policy should be displayed in all areas of the health institution and routinely communicated to all health workers. The policy also states that health workers should postpone all routine neonatal procedures that are not lifesaving, and support skin-to-skin contacts and initiate early breastfeeding. All health workers must be trained in skills necessary to implement this policy and should be fully aware of the importance of breastfeeding (NDOH, 2013).

### Fathers/ husbands

Some studies conducted in Malawi and Mozambique reported that fathers were usually the decision makers in the community. Hence, their views about child health were vital regarding decisions made about infant feeding practices (Arts *et al.*, 2011). Fathers also provide important emotional and financial support to breastfeeding mothers. In contrast, Osborne (2013) reported that in Eastern Cape, the majority of fathers only provided financial support to mothers and infants, as they were working far from home and seemed to be unknowledgeable regarding infant feeding.

Some studies have shown that involvement of fathers in infant feeding interventions has an impact on the initiation of breastfeeding, increase EBF rates and the duration of breastfeeding (Brown *et al.*, 2011; Meedya *et al.*, 2010; Lamontagne *et al.*, 2008; Susin & Giuglian, 2008; Pisacane *et al.*, 2005). However, some findings have shown that fathers can also prevent breastfeeding. In a study conducted in Foni Kansala district in Gambia, it was reported that fathers played an influential role in the early introduction of complementary foods (Njai & Dixey, 2013).

## **2.6 RESOURCES THAT INFLUENCE INFANT FEEDING PRACTICES**

WHO and UNICEF launched many programmes including the Mother and Baby Friendly Initiative (MBFI) and the International Code of Marketing of Breast Milk Substitutes as part of the infant feeding policies to be adhered to at health system levels in order to protect, promote, support and sustain breastfeeding (Kuhn & Kroon, 2015; UNICEF, 2013). Similarly, findings from Perez-Escamilla (2007) also showed that MBFI can increase

breastfeeding rates. Primary health care should be accessible to an enormous majority of the population, with Statistics SA (2011) reported that about 6.8 million children walk more than thirty minutes to reach the clinics near to their households. Studies conducted in South Africa showed that health education about infant feeding at clinics have a significant role in the choices mothers make regarding early infant feeding (Van der Merwe, 2013; Zulliger *et al.*, 2011). The attitude a mother has towards infant feeding can influence their infant feeding practices. (Giles *et al.*, 2010; Swarts *et al.*, 2010). According to Bevan & Brown (2014), a mother's level of education may also play a role in shaping their infant feeding choice.

As previously mentioned, health workers can influence a mother's decision to breastfeed and her confidence to continue breastfeeding (DiGirolamo *et al.*, 2008). However, the latter authors found that some health professionals did not have the skill to assist mothers when they had breastfeeding difficulties. Some lacked breastfeeding knowledge and believed that formula-fed infants were just as healthy as breastfed infants (Feldman-Winter *et al.*, 2008). The training of health workers on breastfeeding initiation showed an improvement of 59% to 65% and an increase in EBF of about two per cent to nine per cent at intervention sites whereas at control sites, mothers were half as likely to be practicing exclusive breastfeeding (Feldman-Winter *et al.*, 2010). Professional support showed a significant positive effect on EBF in the infant's first few months of life (Britton *et al.*, 2007). DiGirolamo *et al.*, (2008), further indicate that one of the most significant types of social support to a mother is alternate child care. The support that a mother receives during the maternal period i.e. antenatal and postnatal, has an impact on breastfeeding initiation and later infant feeding behaviour. Especially the experience regarding breastfeeding immediately and few days after birth are significantly associated with an infant's later feeding.

Mothers who stayed in hospitals that did not follow any of the MBFI steps were eight times likely to stop breastfeeding before their infants were six weeks old as opposed to mothers who stayed at hospitals that followed six of the steps (DiGirolamo *et al.*, 2008). Research has shown that skin-to-skin contact immediately after birth has been associated with a longer duration of breastfeeding (Moore *et al.*, 2007). However, studies conducted by DiGirolamo *et al.* (2008), Ip *et al.* (2007) & Petrova *et al.* (2007), agreed that the supplemental feeds given to breastfed new-borns adversely affects overall infant health and breastfeeding outcomes.

Research has shown that mothers who worked full-time breastfeed for a shorter duration and have lower breastfeeding initiation rates (Mandal *et al.*, 2010). Several studies have shown that employers also benefit when breastfeeding is supported at work. This includes improvement productivity; enhancing the employer's public image; and decreasing absenteeism, health care costs, and employee turnover (Mills, 2009).

Printed materials are often used as a component of multifaceted breastfeeding interventions, which have been shown through a Cochrane review to effectively increase breastfeeding initiation and duration (Britton *et al.*, 2007). This is the reason why the WHO International Code of Marketing of Breastmilk Substitutes prohibits infant feeding companies to interact with pregnant women, especially breastfeeding mothers (NDOH, 2012).

Pregnant women often receive education on breastfeeding. However, no one informs them about the effect of breastfeeding has on their own mental and physical health (Kramer *et al.*, 2008). Hence, maternal depression and stress was found to have a major impact on reducing breastfeeding duration and exclusivity as well as a mother's confidence in developing countries (Hurley *et al.*, 2008). Maternal illness and breast-related difficulties were reported to be the reasons for the early cessation of breastfeeding and/or early introduction of supplementary feeding (Nkala & Msuya, 2011).

## **2.7 CONCLUSION**

This chapter reviewed the literature on infant feeding practices and the factors influencing these practices. Maternal socio-demographic factors such as age, parity, education level, as well as employment may influence breastfeeding. According to the literature reviewed exclusive breastfeeding is not practiced as recommended, globally and in African continent, as well as in India. EBF has been shown to be the most valuable infant feeding practice within the first six months of an infant's life that is being promoted globally. EBF is extremely important in developing countries where limited access to clean water increases the risk of diarrhoeal diseases if formula feeding is used. Nevertheless, many factors reported in some studies that affect the choices of infant feeding and these include demographic setting, culture, economic status as well as health status. These factors outlined in the literature negatively influenced the practice of EBF which resulted in the early introduction of

complementary feeding which lead to early cessation of breastfeeding. Early introduction of solid foods is associated with health problems which included an increased incidence of infections, diarrhoea, chronic diseases and malnutrition.

EBF rates have been shown to decline in South Africa as a result of different factors and reasons given by mothers. Poor practice of EBF lead to infant morbidity and mortality. Even when mothers were aware of the benefits of breastfeeding and EBF, there was also pressure from family members and/or health care personnel, which undermines EBF. Contrary, some family members, friends and health care workers have positive influence on infant feeding. As a result, the conclusion that can be drawn from these results is that factors associated with extended breastfeeding duration as well as exclusivity are highly dependent on the target group in question. Currently, there are no studies focusing on the infant feeding practices targeting Indians residing in the country and/or in KZN. This study will give an insight of the current infant feeding practices and related factors influencing the practices of both Indian and Zulu mothers.

## **CHAPTER THREE**

### **PROCEDURES AND METHODS**

#### **3.1 INTRODUCTION**

This chapter will provide an overview of the research design implemented for the current study, the sampling procedure that was followed, as well as the methods and research instruments that were used for data collection purposes. This will be followed by a discussion of how data was captured, cleaned and statistically analysed, as well as how validity and reliability of the data was ensured. Lastly, the ethical aspects that required consideration and ethics approval prior to data collection being implemented will be discussed.

#### **3.2 STUDY DESIGN**

The selection of a specific study design should be guided by the overall study purpose (LaVange *et al.*, 2010; Baxter & Jack 2008). The study adopted a descriptive cross-sectional study design measuring the current infant feeding practices and factors influencing these practices of Indian and Zulu mothers with infants aged 0 – 9 months attending clinics in Durban North of the Ethekewini District, KwaZulu-Natal.

##### **3.2.1 Advantages of cross-sectional survey**

A cross sectional study is used to estimate the prevalence of behaviour or diseases in a population by taking a cross section of the population sample (Sedgwick, 2014). A cross-sectional descriptive study design was found to be cost effective, meaning that data collection is carried out over a short period of time and the cost related to the fieldwork is low. This design is usually conducted to estimate the prevalence of the outcome for a given population (Sedgwick, 2014; Levin, 2006).

##### **3.2.2 Disadvantages of cross-sectional survey**

However, it also has its limitations. Consistent differences have been reported on breastfeeding patterns at all ages between cross-sectional and longitudinal studies, since a

cross sectional study is not logically designed. A longitudinal study is reported to be prospective or retrospective and observational or experimental in design (Sedgwick, 2014), hence the current study selected was cross sectional. In a cross sectional study, the measurements of a sample are obtained once, unlike in a longitudinal study where they conducted at multiple time points allowing trends of the outcome to be monitored over time. However, in a cross sectional study recruitment may take place across a longer period of time (Sedgwick, 2014).

The cross-sectional method was used because the study focused on a certain target group of mothers with 0-9 months old, and the feeding practices of these children. Due to budget constraints, this method was used as it is cost-effective and carried out over a short period of time.

### **3.3 STUDY POPULATION AND SAMPLING**

#### **3.3.1 Study population**

Tongaat had 42 554 while Verulam had 37 273 total population. Study sites included Tongaat community health centre, Verulam clinic, and Trenance Park clinic that fall under the auspices of the Department of Health as well as municipal areas. The study population consisted of Indian and Zulu mothers older than 18 years of age with infants 0 to 9 months old attending Trenance Park and Verulam clinics, as well as Tongaat community health centre (CHC) in Durban North, KwaZulu-Natal.

#### **3.3.2 Sample selection**

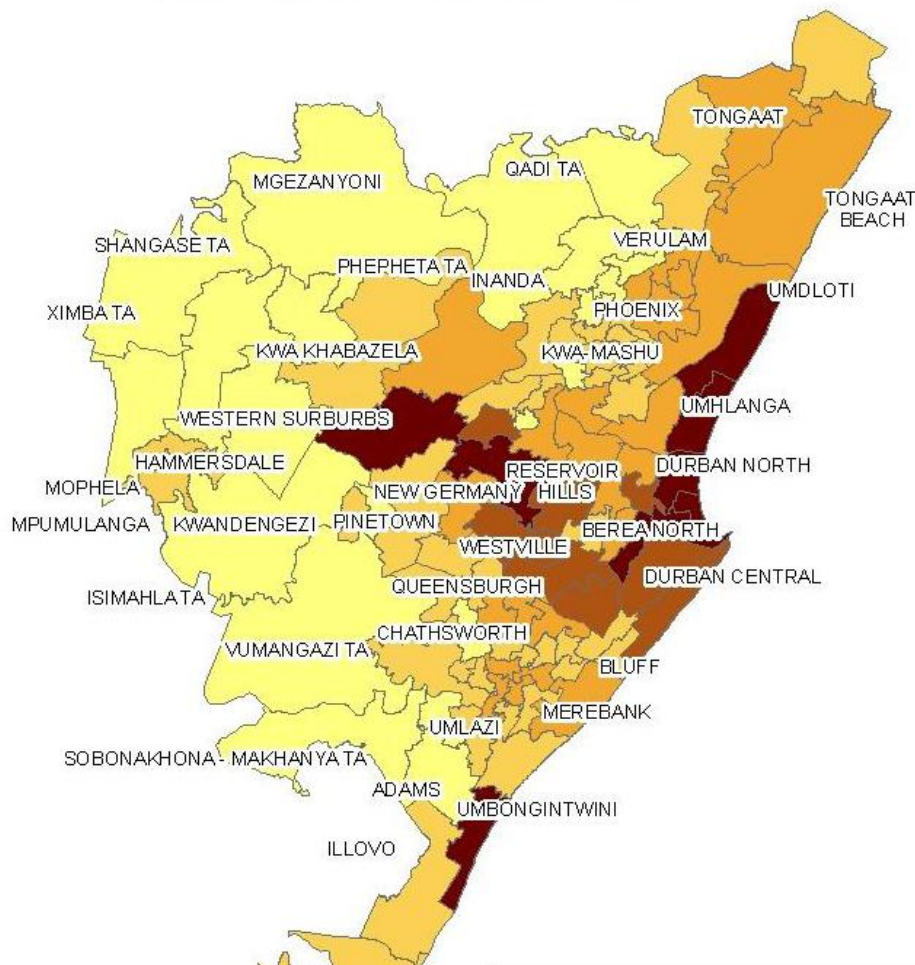
The sampling frame included two clinics namely Trenance Park and Verulam Clinic and one CHC, Tongaat CHC (Figure 3.1) in the North of Durban, eThekweni municipality (Figure 3.2). Tongaat CHC is the only 24-hour health institution within the area and there is one clinic (Hambanathi Clinic) referring clients to Tongaat CHC. The data that was available to facilitate sampling for the clinics and CHC included the monthly statistics by children younger than 12 months. This complicated the ability to determine the potential number of respondents per health facility, since the target was mothers with infants from birth to nine

months of age. Clinics selected were those predominantly attended by both Indian and Zulu mothers, which included one community health centre falling under the auspices of the Department of Health KZN and two clinics from the Ethekewini Municipality Health. The selection of the study area was also influenced by the work experience of the researcher in these health facilities. Hence the study sample size included a proportionate sample 450 mothers with infants falling in the aged 0 – 9 months old divided into 225 Indian and 225 Zulu mothers with various age categories.



**Figure 3.1:** Tongaat Community Health Centre  
Source: Department of Health KZN

## eTHEKWINI MUNICIPALITY



**Figure 3.2:** Ethekewini Municipality Map

Source: Statistics South Africa, Census 2011

### 3.3.3 Sampling technique for Zulu and Indian mothers

Zulu mothers with 0-9 month old infants and Indian mothers with 0-9 month's old infants in each clinic and CHC were recruited by the means of convenience sampling. The inclusion criteria to participate in the study were as follows:

- The participant had to be the infant's mother;
- The participant had to be older than 18 years;
- The participant had to be a Zulu or Indian mother;
- The participant should not have twins (index child);
- The participant should not have received any formalized training in nutrition, and



Researcher used the health facilities statistics of 2015/2016 of infants below one year to determine the sample size.

**Table 3.1:** Health facilities included and the number of mothers interviewed at each facility

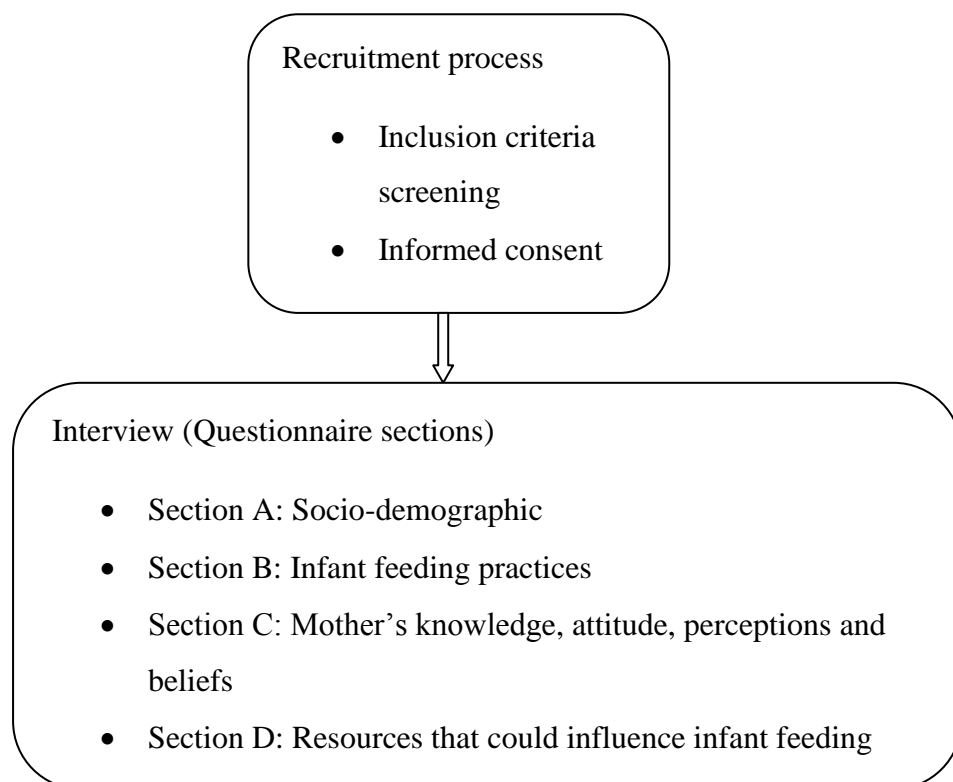
	<b>Indian mothers</b>			<b>Zulu mothers</b>		
Infant age categories	Tonga aat CHC (n = 80)	Trenance Park Clinic (n = 29)	Verulam Clinic (n = 116)	Tonga aat CHC (n = 132)	Trenance Park Clinic (n = 25)	Verulam Clinic (n = 68)
Mothers with infants 0 - < 6 weeks	11	8	43	35	8	28
Mothers with infants 6 - < 14 weeks	28	9	28	58	9	20
Mothers with infants > 14 weeks – 6 months	12	9	38	39	8	20
Mothers with infants > 6 – 9 months	29	3	7	0	0	0

**Table 3.2:** Average monthly statistics of children under one year attending these clinics.

<b>Health Facility</b>	<b>Average monthly statistics</b>
Tonga aat CHC	1084
Trenance Park Clinic	234
Verulam Clinic	542

### 3.4 STUDY METHODS AND RESEARCH INSTRUMENTS

Participants were screened to determine their eligibility for participation in the study, subsequently they were interviewed by trained fieldworker. Thereafter, prospective participants who agreed to participate were given an informed consent to sign in either English or isiZulu. Fieldworker explained the purpose of the study before commencing with the questionnaire administration, which took about 15 to 20 minutes and gave each participant a fruit as a token of gratitude.



**Figure 3.3:** Study process and measuring instruments

#### 3.4.1 Data collection instruments

A questionnaire with both closed and open ended questions consisting of four sections was used to collect data as outlined below. For the purpose of this study, the questionnaire was adapted from a study conducted by Kassier (2002) and modified according to the aims and objectives of the current study. Data was collected by six trained fieldworkers. The fieldworkers interviewed mothers in a private area away from other mothers. The duration of

the average interview was about 15 to 20 minutes. The questionnaires were allocated a code in accordance with the facility where data was collected as well as to ensure confidentiality and anonymity of study participants. The data collection tool included information regarding the following four indicators: (1) socio-demographic characteristics; (2) infant feeding practices (3) mother's knowledge, attitude, perception and beliefs regarding infant feeding as well as (4) resources that could influence infant feeding practices.

### **3.4.2 Pilot study**

Pilot testing is aimed at examining the interview flow, clarity of the questions, acceptability and ease of administration, identifying unusual, irrelevant or poorly worded questions and responses (Thabane *et al.*, 2010; Burns *et al.*, 2008). Arain *et al.* (2010) & Thabane *et al.* (2010) emphasised that pre-testing evaluates whether respondents interpret questions in a consistent manner, as intended by the researcher and to judge the appropriateness of each included question. Data collection tools were pretested on ten (10) mothers at Waterloo Clinic that did not form part of the sampled clinics cited in Table 3.2, prior to data collection. This was done to determine whether modification of the research instrument was necessary to identify ambiguity of survey questionnaires posed by correcting mistakes and to ensure that fieldworkers conducted the interviews in a standardized way. The questionnaire was tested in a pilot study which was less than five per cent of the total sample size (n=23) due to limited number of targeted mothers at the clinic identified for piloting. Minimal changes were made after piloting, since the majority of the changes were made during the fieldworkers training session.

## **3.5 FIELDWORKERS RECRUITMENT AND TRAINING**

Six fieldworkers were recruited from the Tongaat CHC, human resource development office, as they have been doing voluntary work and have been exposed to various health programmes in the health facilities. The fieldworkers were trained during a one-day training session which entailed:

- Explaining the importance of the study, its purpose as well as objectives;
- Understanding the qualities of a good fieldworker during the data collection process;
- Understand the criteria for screening a prospective participant;

- Training on interviewing and recording skills; and
- Gain experience and confidence in administering the research tool in English and Zulu as well as agreeing on a standard way of asking the questions.

Fieldworkers were given the opportunity to conduct practical face-to-face interviews with mothers of the same target group in a non-clinic setting. This gave fieldworkers an opportunity to familiarise themselves with the research tool and build their confidence during the survey. Body language of the fieldworkers during the interview session was evaluated as well as whether adequate emphasis on clarifying questions was conducted where appropriate.

### **3.6 DATA COLLECTION**

Respondents were screened for inclusion criteria and interviewed by the trained fieldworker. The screening was conducted towards the end of the queue before the participants see the clinic staff. Only eligible participants were asked to go to a private area where the fieldworker explained the purpose of the study and important information that the participant should be aware of before participating in the study. Thereafter, participants who agreed to participate were then given an informed consent to sign. Clinics were visited by different fieldworkers until the correct number of mothers had been sampled. Every questionnaire was checked for completeness, clarity and whether the respondent met the inclusion criteria by a different fieldworker before handed in to the researcher. The researcher collected the questionnaires on the same day of the interviews and also applied the above procedure to ensure the data collected was reliable. Data collection took place from late August until early October 2016.

### **3.7 VARIABLES INCLUDED IN THE STUDY, DATA CAPTURING, PROCESSING AND STATISTICAL ANALYSIS**

Data was cleaned, captured and analysed using the Statistical Package for Social Sciences (SPSS) version 24. Variables were coded numerically for questions which included categorical variables. Table 3.3 shows the objectives of the study (section 1.5) and the variables applicable to each objective as well as the statistical analyses used. Chi-square test

was used to assess significant association between variables. The mean  $\pm$  SD was calculated in order to facilitate comparison between groups using independent samples t-test.

The following three infant feeding categories were used to allocate infants according to the current infant feeding practices:

- Exclusive breastfeeding;
- Mixed feeding; and
- Formula feeding/ bottle feeding.

**Table 3.3:** Variables included in the study

<b>Objectives</b>	<b>Independent variables</b>	<b>Dependent variables</b>	<b>Statistical analysis</b>
To determine and compare the socio-demographic characteristics of Indian and Zulu mothers with infants 0-9 months old	Age, level of education, socio-economic status, household status, employment status	Socio-demographic status	Descriptive statistics. Chi-square tests, independent samples t-test
To determine and compare the infant feeding practices of Indian and Zulu mothers with infants 0-9 months old	Exclusive breastfeeding, mixed feeding, formula feeding	Infant feeding practices	Descriptive statistics. Chi-square tests, independent samples t-test
To determine and compare the knowledge, attitudes, perceptions and cultural beliefs regarding infant feeding practices of Indian and Zulu mothers with infants 0-9 months old.	Education, parity, advice from health professionals, advice from friends and relatives, preferred methods of receiving information, previous breastfeeding experience, role	Mother's knowledge, attitudes, perceptions and cultural beliefs	Descriptive statistics. Chi-square tests, independent samples t-test

**Table 3.3 (cont'd.):** Variables included in the study

<b>Objectives</b>	<b>Independent variables</b>	<b>Dependent variables</b>	<b>Statistical analysis</b>
	models, hungry baby, insufficient breast milk, poor quality of breast milk, perceived health benefits of breastfeeding, introduction of pre-lacteals and of liquids and solids		
To determine and compare the influence of family, friends and clinic-based health workers in shaping current infant feeding among Indian and Zulu mothers with infants 0-9 months old.	Social support, role models, knowledge, attitudes, beliefs	Family, friends and clinic-based health workers influence	Descriptive statistics. Chi-square tests, independent samples t-test
To determine and compare the availability of resources that could influence infant feeding practices of Indian and Zulu mothers with infants 0-9 months old.	Access to information and health services, infant care support, time, money, access to safe drinking water	Availability of resources	Descriptive statistics. Chi-square tests, independent samples t-test

### 3.8 DATA QUALITY CONTROL

#### Reliability

Reliability refers to the degree to which results are reproducible under a similar methodology across different interviewers (Burns et al 2008). As previously indicated, this study adapted a

questionnaire used for a survey conducted by Kassier (2002). The questionnaire was revised by the study supervisor and the recommended amendments to specific questions were made in accordance with the study objectives. Hence, the reliability of the questionnaire utilized in this study was ensured by training the fieldworkers (section 3.5), pre-testing of the questionnaire (section 3.4.2), providing fieldworkers with an interview schedule which entailed the flow of the interview as well as the questionnaires asked in the vernacular language of the study participants (Annexure III and IV), and checking the reported date of birth and birth weights of the infants (question 2 and 5 respectively of the survey questionnaire) against that recorded in the Road To Health Booklet. The researcher checked questionnaires for completeness (section 3.4.1).

### Validity

Validity refers to the effectiveness and accuracy to which the measuring tool actually measures what was intended to be measured (Burns *et al* 2008). This study also included content validity which Burns *et al* (2008) defined as the accuracy with which an instrument measures factors or situations under study (section 3.4.2). Content validity was ensured by training fieldworkers in a standardized way of asking questions and recording responses which was established during the training and pretesting of the questionnaire on participants similar to that of the study sample. Construct (theory) validity was ensured by outlining the different infant feeding practices on which data analysis was based (section 1.6).

## **3.9 REDUCTION OF BIAS**

Bias refers to any trend or form of systematic error that can affect scientific investigations and distort the measurement process in a study. Bias can result in a study to lose its validity in relation to the degree of the bias (Pannucci & Wilkins 2010; Sica 2006). Simundic (2013) emphasized that a research question should to be considered with much attention, meaning the questionnaire should be asked in a way that objectives of the study will be answered, and all efforts need to be made to ensure that a sample is as closely matched to the population as possible. Participants need to be eligible.

In the current study, bias was reduced by ensuring that only eligible mothers participated in the study as the fieldworker approached each participant, as training was conducted for all fieldworkers on how to approach mothers and administer questionnaires, questionnaires were validated before used through verification by study supervisor and pilot testing, translation of questionnaires into simple isiZulu was done through back translation method to ensure both fieldworker and participant understand the content and interview schedule that was used.

### **3.10 ETHICAL CONSIDERATIONS**

Permission to conduct research in the selected health facilities was obtained from the Chairperson of the Health Research Committee, KZN Department of Health (Annexure VII) and Deputy Head of Health, Ethekewini Municipality (Annexure VIII). Ethics approval was obtained from the Humanities & Social Sciences Ethics Committee, Pietermaritzburg Campus, University of KwaZulu Natal, Reference number: HSS/0517/016M (Annexure V). Participants were informed that participation was voluntary and that the information collected will remain confidential. Hence each data set was allocated a code. Each participant was given a code for identification purposes. Mothers signed an informed consent form before the fieldworker administered interview commenced. After the interview, the mothers received fruits as a token of gratitude. They were not informed about the fruit when informed consent was obtained.



## CHAPTER FOUR

### RESULTS

#### 4.1 INTRODUCTION

For the purpose of this study, results comparing the current infant feeding practices and related factors of Zulu and Indian mothers with infants 0-9 months will be presented in this chapter. The results will be presented according to the study objectives outlined in chapter one: socio-demographic characteristics; infant feeding practices; knowledge, attitudes, perceptions and cultural beliefs regarding infant feeding; influence of family, friends and clinic-based health workers in shaping infant feeding and resources that could have influenced the infant feeding practices of the target group.

#### 4.2 SOCIO-DEMOGRAPHIC CHARACTERISTICS

The socio-demographic data are summarized in Table 4.1, 4.2, 4.3 and 4.4. A Chi-square t-test was performed to determine if there is a statistical significance between the race and socio-demographic characteristics. Tables 4.1, 4.2, 4.3 and 4.4 show that there was statistically significant difference between race and for most of the socio-demographic characteristics ( $p < 0.000$ ), except for type of delivery ( $p = 0.276$ ) and mother's mean age ( $p = 0.056$ ).

**Table 4.1:** Clinics surveyed with racial distribution per clinic

Respondent clinic		Tongaath CHC n = 212	Trenance Park Clinic n = 54	Verulam Clinic n = 184	Total n = 450	P-value #
Respondent race	Indian	37.7% (n=80)	53.7% (n=29)	63% (n=116)	50% (n=225)	0.000
	Zulu	62.3% (n=132)	46.3% (n=25)	37% (n=68)	50% (n=225)	

Table 4.1 presents the surveyed clinics with the racial distribution per clinic. A total of 450 mothers (225 Indian and 225 Zulu) between the ages of 19 – 46 years with a mean age of 26.57 (SD  $\pm$  5.51) participated in the study. Half of the study sample was presented by (n=225) of Indian mothers with infants from birth to nine months and the remaining fifty percent (n=225) consisted of Zulu mothers were interviewed while attending three antenatal clinics. There was a statistically significant difference (p-value<0.000) in terms of racial distribution (Indian versus Zulu) and the surveyed clinics.

**Table 4.2:** Delivery variables of Indian and versus Zulu mothers

Characteristics		Indian mothers	Zulu mothers	P-value #
Place of birth Health facility Home		100% (n=225)	92% (n=207)	0.000
		0% (n=0%)	8% (n=18)	
Type of delivery Vaginal Caesarean section		72.9% (n=164)	77.3% (n=174)	0.276
		27.1% (n=61)	22.7% (n=51)	
Infant gender Male Female		52.4% (n=118)	41.3% (n=93)	0.018
		47.6% (n=107)	58.7% (n=132)	
Infant's birth weight	Mean birth weight (kg)	2.82 $\pm$ (SD 0.44)	3.07 $\pm$ (SD 0.49)	0.003
Infants birth weight less than 2.5 kg	Low birth weight	19.6% (n=44)	9.3% (n=21)	0.002

# Pearson Chi-square

Table 4.2 presents the variables related to the delivery of mothers surveyed (n = 450). All (n=225) Indian mothers delivered at a health facility compared to 92% (n=207) of Zulu mothers with 8% (n=18) having delivered at home. There was significant difference between race and place of delivery (p<0.000), infant gender, birth weight and low birth weight infants. The results show that the majority of Zulu infants (77.3%) were delivered vaginally, while

72.9% of Indian infants were delivered vaginally. Just over a quarter (27.1%) of Indian infants and (22.7%) of Zulu infants were delivered via caesarean section.

**Table 4.3:** Socio-demographic characteristics of the study sample

Characteristics	Indian mothers	Zulu mothers	P-value #
Mother's mean age	26.48 (SD 4.936)	26.66 (SD 6.035)	0.056
Level of education			0.000
No school	0% (n=0)	1.8% (n=4)	
Primary school	6.7% (n=15)	13.8% (n=31)	
Secondary school	78.2% (n=176)	80% (n=180)	
Tertiary education	4.4% (n=10)	15.1% (n=34)	
% of mothers with other children	46.2% (n=104)	66.7% (n=150)	0.000
Number of people living in the house	2.7% (n=6)	8% (n=18)	0.000
One	22.2% (n=50)	23.6% (n=53)	
Two	25.8% (n=58)	12% (n=27)	
Three	25.3% (n=57)	14.2% (n=32)	
Four	16% (n=36)	12.9% (n=29)	
Five	3.1% (n=7)	9.3% (n=21)	
Six	1.8% (n=4)	4.9% (n=11)	
Seven	3.1% (n=7)	15.1% (n=34)	
Eight and/or more			
Live with infant's father	68.9% (n=155)	29.8% (n=67)	0.000
Source of drinking water			0.000
Tap in house	92.4% (n=208)	51.1% (n=115)	
Outside source	7.6% (n=17)	48.9% (n=110)	
% of outside sourced water purified/cleaned	5.9% (n=1)	20% (n=22)	0.000

# Pearson Chi-square

The majority of mothers from both race groups, Indian (78.2%) and Zulu (80%), had secondary school education level and there was a significant difference between race and, level of educational attained. More Zulu mothers (66.7%) had other children compared to Indian mothers (46.2%). The majority (92%) of Indian mothers reported to have a tap inside the house when compared to 51% of Zulu mothers ( $p<0.000$ ). Only 20% of Zulu mothers and 5.9% of Indian mothers purified water from those who reported using an outside source of drinking water ( $p<0.000$ ). Large number of Zulu participants lived with many people in the house when compared to Indian participants. There was a significant difference between Indian and Zulu mothers, and number of people living in the house ( $p<0.000$ ). More Indian mothers (68.9%) live with the infant's father when compared to Zulu mothers (29.8%).

**Table 4.4:** Socio-economic characteristics of the study sample

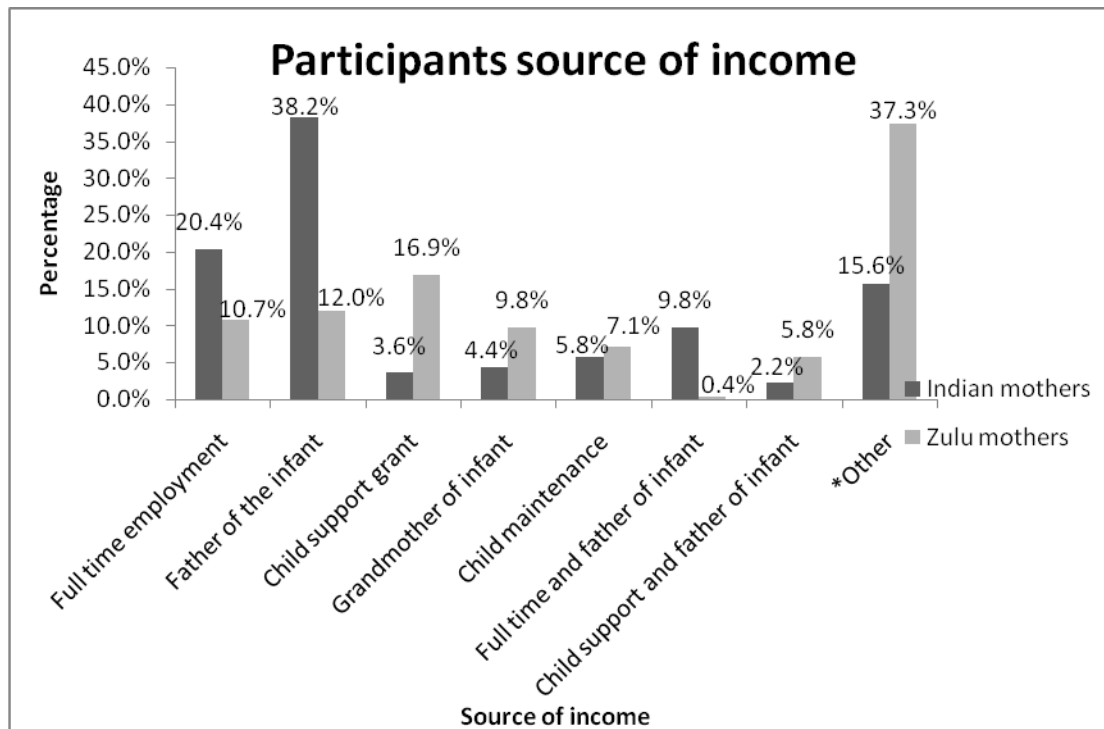
Characteristics	Indian mothers	Zulu mothers	P-value #
% of working mothers	36.9% (n=83)	21.8% (n=49)	0.000
Source of income:			0.000
Full time employment	20.4% (n=46)	10.7% (n=24)	
Father of the infant	38.2% (n=86)	12% (n=27)	
Child support grant	3.6% (n=8)	16.9% (n=38)	
Grandmother of infant	4.4% (n=10)	9.8% (n=22)	
Child maintenance	5.8% (n=13)	7.1% (n=16)	
Full time and father of infant	9.8% (n=22)	0.4% (n=1)	
Child support and father of infant	2.2% (n=5)	5.8% (n=13)	
Other (combination of different sources of income)	15.6% (n=35)	37.3% (n=84)	
Family's total income:			0.000
0 - R500 per month	1.8% (n=4)	4.4% (n=10)	
R500 - R1000 per month	7.1% (n=16)	16.4% (n=37)	
R1000 - R2000 per month	10.2% (n=23)	34.2% (n=77)	
R2000 - R3000 per month	10.2% (n=23)	15.1% (n=34)	
R3000 - R4000 per month	17.3% (n=39)	11.6% (n=26)	
R4000 and higher per month	53.3% (n=120)	18.2% (n=41)	

**Table 4.4 (cont'd.):** Socio-economic characteristics of the study sample

<b>Characteristics</b>	<b>Indian mothers</b>	<b>Zulu mothers</b>	<b>P-value #</b>
% of mothers having a say in income expenditure	85.3% (n=192)	69.3% (n=156)	0.000
% of mothers with known income that falls below poverty line (<R5544/month family of four)	46.7% (n=105)	81.8% (n=184)	0.000

# Pearson Chi-square

The minority of mothers from both groups were employed, with Indian (36.9%) and Zulu (21.8%). There was a significant difference ( $p < 0.000$ ) between race and employment status. For sources of income, Indian mothers depended mostly to the father of the infant (38.2%), while Zulu mothers depended on other sources of income (37.3%), such as combined income including infants father and child support grant or child support grant and child maintenance or pension and child support grant, to mention a few. Approximately 17% of Zulu mothers depended on a child support grant whereas, 3.6% Indian mothers had child support grant as source of income. There was a statistically significant difference ( $p < 0.000$ ) between race and source of income. The majority of Indian mothers (85.3%) had a say on income expenditure when compared to Zulu mothers (69.3%). Of those mothers with a known household income, more Zulu mothers reported to have an income that fell below the poverty line (R5544 / household of four people) (Isaacs 2016). Statistically, there was a significance difference between race and total household income as well as the number of people living in the household.



**Figure 4.1:** Participant's source of income

### 4.3 INFANT FEEDING PRACTICES

Tables 4.5, 4.6, 4.7 and 4.8 show that there was a significant difference for the percentage of infants who sucked a pacifier/dummy ( $p < 0.000$ ) and percentage of mothers who gave food and/or liquids in addition to breast milk ( $p < 0.000$ ) as well as foods/liquids given to the infants before the age of six months. Table 4.8 outlines formula feeding related practices.

Table 4.5 indicates that both groups had high breastfeeding initiation immediately after birth with 95.5% of Indian mothers compared to 90.1% of Zulu mothers. However, 30.7% Indian mothers stopped breastfeeding in less than six months and 16.7% Zulu mothers, with majority of the mothers in both groups (Indian, 55.7% and Zulu, 58.8%) stopped breastfeeding within less than four weeks after the infant's birth. Most mothers reported going back to work as the main reason for stopping breastfeeding (27.9% of Indian mothers and 26.6% of Zulu mothers), followed by those who reported "too little milk" (18% of Indian mothers and 20.6% of Zulu mothers).

**Table 4.5:** Breastfeeding initiation, duration and reasons for stopping breastfeeding

Characteristics	Indian mothers	Zulu mothers	P-value #
BF initiation:			0.092
Immediately after birth	95.5% (n=190)	90.1% (n=183)	
Few hours after birth	2% (n=4)	6.9% (n=14)	
The day after birth	1.5% (n=3)	0.5% (n=1)	
Two days after birth	0.5% (n=1)	1.5% (n=3)	
More than two days after birth	0.5% (n=1)	1% (n=2)	
BF duration:			0.768
0 < 4 weeks	55.7% (n=34)	58.8% (n=20)	
1 month < 2 months	21.3% (n=13)	29.4% (n=10)	
2 months < 3 months	9.8% (n=6)	5.9% (n=2)	
3 months < 4 months	8.2% (n=5)	2.9% (n=1)	
4 months < 5 months	3.3% (n=2)	2.9% (n=1)	
5 months < 6 months	1.6% (n=1)	0% (n=0)	
Reasons for BF cessation:			0.854
Mother went back to work	27.9% (n=17)	26.5% (n=9)	
Too little milk	18.0% (n=11)	20.6% (n=7)	
Breast problems	14.8% (n=9)	14.7% (n=5)	
Baby refused breast	13.1% (n=8)	5.9% (n=2)	
Mother was ill	4.9% (n=3)	5.9% (n=2)	
Weak milk	6.6% (n=4)	5.9% (n=2)	
Baby was ill	3.3% (n=2)	0% (n=0)	
Milk stopped coming out from the breasts	3.3% (n=2)	5.9% (n=2)	
	1.6% (n=1)	2.9% (n=1)	
Mother was initiated on ARVs	0% (n=0)	2.9% (n=1)	
Mother looking for job	1.6% (n=1)	0% (n=0)	
Personal problems	1.6% (n=1)	0% (n=0)	
Mother was going back to tertiary	3.3% (n=2)	8.8% (n=3)	
Mother was going back to school			

# Pearson Chi-square

**Table 4.6:** Breastfeeding-related practices of Indian and Zulu mothers

Characteristics	Indian mothers	Zulu mothers	P-value #
% of study infants where breastfeeding was stopped	30.7% (n=61)	16.7% (n=34)	0.092
% of mothers who breastfed that were shown how to breastfeed	90% (n=180)	77.9% (n=159)	0.068
% of mothers who felt the infant was satisfied after breastfeeding	71.5% (n=143)	81.4% (n=166)	0.127
% of mothers who practiced demand feeding	81% (n=162)	80.4% (n=164)	0.877
% of mothers who introduced breastfeeding immediately after birth	95.5% (n=190)	90.1% (n=183)	0.092
% of infants who sucked a pacifier/dummy	39.1% (n=88)	18.7% (n=42)	0.000
% of mothers who gave food and/or liquids in addition to breast milk	50% (n=69)	22.5% (n=39)	0.000
% of infants receiving pre-lacteal feeds	15.6% (n=35)	14.2% (n=32)	0.201

# Pearson Chi-square

Table 4.6 provides an overview of the factors that may have influenced the breastfeeding-related practices of the study participants. The above findings clearly show that the breastfeeding initiation rates (immediately after birth) were high for both groups (95.5% for Indian and 90.1% for Zulu mothers respectively). In addition, most mothers were shown how to breastfeed, felt that their infants were satisfied after breastfeeding and practiced demand feeding. No statistically significant difference between Zulu and Indian mothers were found for most of the breastfeeding-related practices with the exception of infants who sucked a pacifier/dummy ( $p<0.000$ ) and mothers who gave food and/or liquids in addition to breast milk ( $p<0.000$ ).



**Table 4.7:** Foods/liquids and age at which these foods/liquids given to infants before six months of age

Foods/liquids given before six months of age:	Indian mothers	Zulu mothers	P-value #
Breast milk only	37.8% (n=85)	64% (n=144)	0.000
Infant formula only	31.1% (n=70)	20.4% (n=46)	
Breast milk, formula and/ other foods or liquids (mixed fed)	31.1% (n=70)	15.6% (n=35)	
Age other foods or liquids introduced in addition to breast milk:			0.125
Birth to < 1 month	49.3% (n=34)	35.9% (n=14)	
1 month < 2 months	17.4% (n=12)	33.3% (n=13)	
2 months < 3 months	13% (n=9)	7.7% (n=3)	
3 months < 4 months	11.6% (n=8)	7.7% (n=3)	
4 months < 5 months	5.8% (n=4)	7.7% (n=3)	
5 months < 6 months	0% (n=0)	7.7% (n=3)	
2 weeks and 6 weeks respectively	1.5% (n=1)	0% (n=0)	
3 days and 3 months respectively	1.5% (n=1)	0% (n=0)	

# Pearson Chi-square

More than half (64%) of Zulu mothers reported to be breastfeeding exclusively when compared to 37.8% of Indian mothers. Table 4.7 shows that more Indian mothers were either formula feeding (31.1%) or mixed feeding (31.1%) as compared to 20.4% of Zulu mother's formula feeding and (15.6%) mixed feeding. There was a statistically significance difference between race and foods/liquids given to infants before six months of age. Approximately 49% Indian and (36%) Zulu mothers gave supplementary foods to the infants at a very young age of between zero to less than four weeks.

**Table 4.8:** Column % of formula-related infant feeding practices

Characteristics	Indian mothers	Zulu mothers	P-value #
% of mothers received information about formula feeding.	35.6% (n=80)	26.7% (n=60)	0.039
% of mothers who were shown how to make a bottle	27.6% (n=62)	25.8% (n=58)	0.670

# Pearson Chi-square

The results reported in Table 4.8 give an indication of the percentage of mothers who received information about formula feeding and how to prepare formula. Indian mothers (35.6%) were more likely to receive the information on formula feeding than Zulu mothers (26.7%). Relatively few mothers of both groups (Indian and Zulu) were shown how to make a bottle at 27.6% and 25.8% respectively. There was a statistically significant difference between race and the mothers who received information about formula feeding.

#### **4.4 INDICATORS OF KNOWLEDGE, ATTITUDES, PERCEPTIONS AND BELIEFS REGARDING INFANT FEEDING PRACTICES**

The findings of selected variables regarding knowledge, attitudes, perceptions and beliefs of Indian and Zulu mothers regarding infant feeding are presented Tables 4.9 and 4.10.

Table 4.9 show there was significant difference between race and mothers who received postnatal nutrition education ( $p = 0.001$ ). The majority of mothers from both groups received antenatal and postnatal nutrition education with a higher percentage of Indian mothers receiving antenatal and postnatal nutrition education.

**Table 4.9:** Antenatal clinic attendance and nutrition education received in antenatal and postnatal phase by mothers

Characteristics	Indian mothers	Zulu mothers	P-value #
% of mothers attending of clinic during pregnancy	99.1% (n=223)	98.2% (n=221)	0.411
% of mothers receiving ante-natal nutrition education	82.2% (n=185)	77.8% (n=175)	0.239
% of mothers receiving postnatal nutrition education	84.4% (n=190)	72% (n=162)	0.001

# Pearson Chi-square

**Table 4.10:** Knowledge, attitudes, perceptions and beliefs regarding infant feeding practices of Indian and Zulu mothers

Characteristics	Indian mothers	Zulu mothers	P-value #
Used to give liquids other than breast milk:			0.126
Bottle	90.7% (n=127)	83.1% (n=69)	
Cup	0% (n=0)	1.2% (n=1)	
Spoon	5.7% (n=8)	13.3% (n=11)	
Bottle and spoon	3.6% (n=5)	2.4% (n=2)	
Main reasons for breastfeeding study infant:			0.039
Baby to be strong and healthy	65.6% (n=40)	73.5% (n=25)	
Create bond	11.5% (n=7)	2.9% (n=1)	
Strong baby and prevent illnesses	8.2% (n=5)	0% (n=0)	
Instructed by nurse	4.9% (n=3)	0% (n=0)	
Baby was still young	0% (n=0)	8.8% (n=3)	
To prevent illnesses/ diseases	3.3% (n=2)	5.9% (n=2)	
Strong and healthy baby and instructed by nurses	0% (n=0)	2.9% (n=1)	
Mother was not working	0% (n=0)	2.9% (n=1)	

# Pearson Chi-square

**Table 4.10 (continued):** Knowledge, attitudes, perceptions and beliefs regarding infant feeding practices of Indian and Zulu mothers

Characteristics	Indian mothers	Zulu mothers	P-value #
Main reasons for breastfeeding study infant:			
Strong and healthy baby, to prevent illnesses and create bonding	1.6% (n=1)	2.9% (n=1)	0.039
Strong and healthy baby and create bonding	4.9% (n=3)	0% (n=0)	
Main reasons for giving study infant something other than breast milk:			
Hungry baby	12.4% (n=15)	26.5% (n=18)	0.022
Milk too little	19.8% (n=24)	8.8% (n=6)	
Mother went back to work	32.2% (n=39)	20.6% (n=14)	
Breast problems	9.0% (n=11)	11.8% (n=8)	
Baby refused breast	7.4% (n=9)	2.9% (n=2)	
Weak milk	5% (n=6)	4.4% (n=3)	
Mother ill	3.4% (n=4)	2.9% (n=2)	
Mother went back to school	1.7% (n=2)	10.3% (n=7)	
Breast milk was not coming out	3.4% (n=4)	1.5% (n=1)	
Mother was looking for a job	0.8% (n=1)	2.9% (n=2)	
Baby ill	1.7% (n=2)	2.9% (n=2)	
Weak milk and mother was HIV positive	0% (n=0)	2.9% (n=2)	
Baby cried a lot	0.8% (n=1)	1.5% (n=1)	
Mother was going back to tertiary	1.7% (n=2)	0% (n=0)	
Church	0.8% (n=1)	0% (n=0)	
Main reasons for infant's crying:			
Baby is cold	65.8% (n=148)	73.8% (n=166)	0.000
Baby is wet	16.4% (n=37)	21.3% (n=48)	
Want to be picked up	16.4% (n=37)	4.0% (n=9)	

# Pearson Chi-square

**Table 4.10 (continued):** Knowledge, attitudes, perceptions and beliefs regarding infant feeding practices of Indian and Zulu mothers

Characteristics	Indian mothers	Zulu mothers	P-value #
Reasons for pre-lacteal feeds:			0.360
Mother was going back to work	14.3% (n=5)	15.6% (n=5)	
Breast milk was not coming out	14.3% (n=5)	18.8% (n=6)	
Mother ill	22.9% (n=8)	3.1% (n=1)	
Baby refused breast	11.4% (n=4)	9.4% (n=3)	
Breast problems	5.7% (n=2)	15.6% (n=5)	
Too little milk	8.6% (n=3)	12.5% (n=4)	
Baby was premature	2.9% (n=1)	6.25% (n=2)	
Baby was ill	2.9% (n=1)	3.1% (n=1)	
Weak milk	5.7% (n=2)	0% (n=0)	
Baby was sleeping	0% (n=0)	3.1% (n=1)	
Mother was going to back to tertiary	2.9% (n=1)	3.1% (n=1)	
Baby was vomiting breast milk	0% (n=0)	6.25% (n=2)	
Mother was still unconscious	0% (n=0)	3.1% (n=1)	
Doctors' instruction	2.9% (n=1)	0% (n=0)	
Breastmilk was not coming and mother had to go back to work	2.9% (n=1)	0% (n=0)	
Baby was in an incubator	2.9% (n=1)	0% (n=0)	
% o mothers followed infant feeding advice	56.5% (n=108)	78.7% (n=129)	0.000
Information mothers did not follow:			0.707
To breastfeed	54.1% (n=46)	60% (n=21)	
To breastfeed exclusively	44.7% (n=38)	40% (n=14)	
To formula feed exclusively	1.2% (n=1)	0% (n=0)	

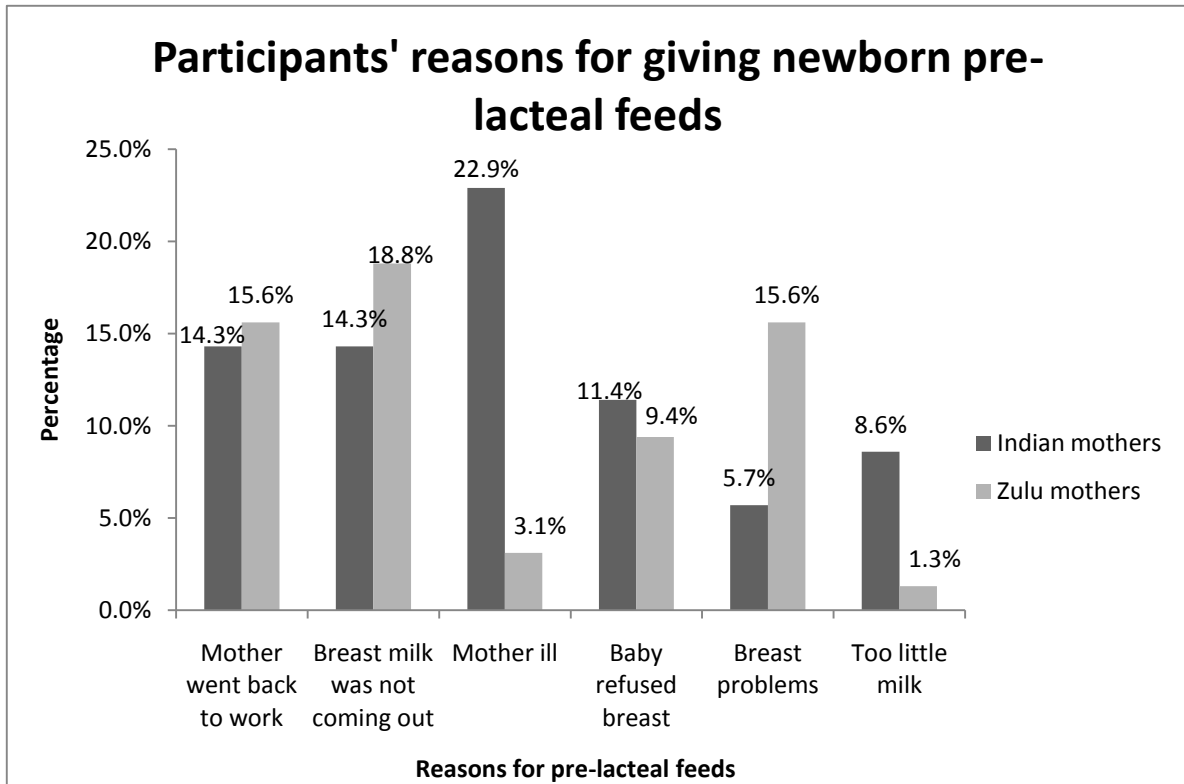
# Pearson Chi-square

**Table 4.10 (continued):** Knowledge, attitudes, perceptions and beliefs regarding infant feeding practices of Indian and Zulu mothers

Characteristics	Indian mothers	Zulu mothers	P-value #
Reasons for not following advice:			0.395
Mother went back to work	28.2% (n=24)	20% (n=7)	
Baby did not get satisfied	15.3% (n=13)	28.6% (n=10)	
Too little milk	20% (n=17)	5.7% (n=2)	
Baby refused breast	7.1% (n=6)	5.7% (n=2)	
Breast milk was not coming out	7.1% (n=6)	5.7% (n=2)	
Mother was ill	4.7% (n=4)	5.7% (n=2)	
Weak milk	3.5% (n=3)	8.6% (n=3)	
Breast problems e.g. sore nipples	4.7% (n=4)	2.9% (n=1)	
Mother going back to school	1.2% (n=1)	8.6% (n=3)	
Personal problems	2.4% (n=2)	0% (n=0)	
Baby was ill	1.2% (n=1)	2.9% (n=1)	
Mother was looking for a job	1.2% (n=1)	2.9% (n=1)	
Baby cried a lot	1.2% (n=1)	2.9% (n=1)	
Mother was going back to tertiary	1.2% (n=1)	0% (n=0)	
Too little milk and mother will be going back to work	1.2% (n=1)	0% (n=0)	

# Pearson Chi-square

In table 4.10 above it is evident that the majority of Indian mothers (90.7%) used bottle to feed their infants compared to 83.1% Zulu mothers. Nearly three quarters (73.5%) of Zulu mothers reported that the most important reason for breastfeeding was for baby to be strong and healthy as compared to 65.6% Indian mothers. The main reason for majority of the Indian mothers to give infant other foods or liquids other than breast milk was going back to feeds when compared to Zulu mothers (18.8%) who said breast milk was not coming out. Some mothers (84.4% of Indian and 72% of Zulu) were educated on infant feeding, 44.7% Indian and 21.6% Zulu mothers did not follow advice with Indian mothers (28.2%) citing going back to work as the main reason and the infant not being satisfied indicated by Zulu



**Figure 4.2:** Participants' reason for giving newborns pre-lacteal feeds

mothers (28.6%). There was a significant difference between race and the following practices: main reasons for breastfeeding study infant ( $p = 0.039$ ), main reasons for giving study infant something other than breast milk ( $p = 0.022$ ), main reasons for infant's crying ( $p < 0.000$ ), and the percentage of mothers who followed infant feeding advice ( $p < 0.000$ ).

#### 4.5 INDICATORS OF THE INFLUENCE OF FAMILY, FRIENDS AND CLINIC-BASED HEALTH WORKERS ON INFANT FEEDING PRACTICES

The results of a number of selected variables concerning the influence of family, friends and clinic-based health workers on infant feeding practices are indicated in Table 4.11.

Table 4.11 present the results showing that clinic-based nursing staff is the most important source of antenatal and postnatal infant feeding education. However, there was a statistically significant difference between race and predominant source of antenatal education ( $p < 0.000$ ); and no significant difference with postnatal education source ( $p = 0.066$ ). The majority of mothers in both groups (80.1% Indian and 70.5% Zulu) reported that it was their

**Table 4.11:** Influence of family, friends and clinic-based health workers on infant feeding practices

Characteristics	Indian	Zulu	P-value #
Predominant source of antenatal education:			0.000
Doctor	8.6% (n = 16)	2.3% (n = 4)	
Nursing sister	64.7% (n= 121)	63.1% (n= 111)	
Staff nurse	17.1% (n = 32)	18.2% (n = 32)	
NA/CCG	0% (n = 0)	4% (n = 7)	
Grandmother of infant	0.5% (n = 1)	4% (n = 7)	
Nursing sister and NA/CCG	0.5% (n = 1)	5.7% (n = 10)	
Doctor and nursing sister	4.3% (n = 8)	0% (n = 0)	
Other	4.3% (n = 8)	2.8% (n = 5)	
Predominant source of postnatal education:			0.066
Nursing sister	71.6% (n= 136)	67.9% (n= 110)	
Staff nurse	16.3% (n = 31)	19.1% (n = 31)	
Doctor	6.3% (n = 12)	1.2% (n = 2)	
Nursing sister and staff nurse	2.1% (n=4)	2.5% (n=4)	
Nursing sister and NA/ CCG	1.1% (n=2)	3.1% (n=5)	
Nutrition advisor/ community care givers	0% (n=0)	2.5% (n=4)	
Mom-Connector	0% (n=0)	1.2% (n=2)	
Mother in-law	1.1% (n=2)	0% (n=0)	
Doctor and nursing sister	0.5% (n=1)	0.6% (n=1)	
Nursing sister and mother	0.5% (n=1)	0.6% (n=1)	
Staff nurse and NA / CCG	0% (n=0)	0.6% (n=1)	
Doctor and staff nurse	0.5% (n=1)	0% (n=0)	
Family member: Mother	0% (n=0)	0.6% (n=1)	

# Pearson Chi-square; \*CCG – Community care givers; NA – Nutrition advisor



**Table 4.11 (continued):** Influence of family, friends and clinic-based health workers on  
infant feeding practices

Characteristics	Indian	Zulu	P-value #
Influence to give infant something other than breast milk:			
Own decision	80.1% (n = 97)	70.5% (n = 48)	0.055
Clinic staff	8.3% (n = 10)	11.8% (n = 8)	
Mother	3.3% (n = 4)	5.9% (n = 4)	
Infants father	4.1% (n = 5)	1.5% (n = 1)	
Grandmother's advice	0% (n=0)	4.4% (n=3)	
Mother in-laws advice	1.7% (n=2)	0% (n=0)	
Sister/other relative	0% (n=0)	2.9% (n=2)	
Own and mother in-law	1.7% (n=2)	0% (n=0)	
Own decision and mother	0% (n=0)	1.5% (n = 1)	
Own decision and clinic staff	0.8% (n=1)	0% (n=0)	
Own decision and infant's father	0% (n=0)	1.5% (n = 1)	
% of mothers living with infant's father	68.9% (n= 155)	29.8% (n = 67)	0.000

# Pearson Chi-square; \*CCG – Community care givers; NA – Nutrition advisor

own decision to give the infants something other than breast milk. The clinic staff was cited as being the next most likely person (8.3% of Indian and 11.8% of Zulu mothers) to influence the decision to supplement breastfeeding with other foods and/or liquids. It is noted that majority of Indian mothers about 68.9% lived with the infant's father when compared to only approximately 29.8% of Zulu mothers ( $p < 0.000$ ).

#### 4.6 RESOURCES THAT INFLUENCE INFANT FEEDING PRACTICES

Some of the resources that are available to Indian and Zulu mothers that could influence their infant feeding practices are reported in Table 4.12.

**Table 4.12:** Resources that influence the infant feeding practices of mothers

Characteristics	Indian mothers	Zulu mothers	P-value #
% of mothers where clinic is within walking distance	34.7% (n=78)	49.8% (n=112)	0.003
Main reasons for using clinic:			0.000
Immunization	44.4% (n=100)	49.8% (n=112)	
Immunization and infant growth monitoring	11.6% (n=26)	3.1% (n=7)	
Infant illness and immunization	17.3% (n=39)	15.6% (n=35)	
Mothers illness and immunization	5.3% (n=12)	11.6% (n=26)	
Infant growth monitoring	4.4% (n=10)	3.1% (n=7)	
Family planning and immunization	2.2% (n=5)	4.4% (n=10)	
Infant illness	0.9% (n=2)	3.1% (n=7)	
Infant and own illness and immunization	1.3% (n=3)	1.8% (n=4)	
Infant and own illness	1.3% (n=3)	1.8% (n=4)	
Own illness, FP and immunization	0% (n=0)	2.2% (n=5)	
Infant illness, FP and immunization	0.4% (n=1)	2.2% (n=5)	
Infant illness and growth monitoring	2.7% (n=6)	1.3% (n=3)	
Infant illness, immunization and growth monitoring	3.1% (n=7)	0% (n=0)	
FP, immunization and infant growth monitoring	1.3% (n=3)	0% (n=0)	
Own illness and infant growth monitoring	0.4% (n=1)	0.9% (n=2)	
Family planning	0.4% (n=1)	0% (n=0)	
Infant illness, FP, immunization and growth monitoring	0.4% (n=1)	0% (n=0)	

# Pearson Chi-square; \* FP – Family Planning

**Table 4.12 (continued):** Resources that influence the infant feeding practices of mothers

Characteristics	Indian mothers	Zulu mothers	P-value #
Main facility to receive information about infant feeding:			
Local clinic	91.6% (n=206)	92% (n=207)	0.392
At home	4.4% (n=10)	3.1% (n=7)	
At the local church hall	2.2% (n=5)	2.2% (n=5)	
At the local school hall	0.4% (n=1)	2.2% (n=5)	
Doctors room	0.9% (n=2)	0% (n=0)	
Over the phone	0.4% (n=1)	0.4% (n=1)	
How to receive infant feeding information:			
Personal conversation with clinic staff	93% (n=210)	92.9% (n=209)	0.559
Personal conversation with a relative	2.2% (n=5)	1.3% (n=3)	
Conversation with clinic staff and group meeting with other mothers	0.9% (n=2)	0.9% (n=2)	
Personal conversation with friend	0.4% (n=1)	0.4% (n=1)	
Group meeting with other mothers of infants	0% (n=0)	0.4% (n=1)	
Television programme	0% (n=0)	0.9% (n=2)	
Conversation with her mother	0.4% (n=1)	0% (n=0)	
Magazine e.g. Bona, Drum	0.4% (n=1)	0% (n=0)	
Brochure to take home	0.4% (n=1)	0% (n=0)	
Poster	0% (n=0)	0.4% (n=1)	
Social workers	0.4% (n=1)	0% (n=0)	
Conversation with the doctor			
Personal conversation with clinic staff, on the radio, newspaper and poster	0.4% (n=1)	0.4% (n=1)	
Conversation with clinic staff and friend	0% (n=0)	0.4% (n=1)	
Personal conversation with clinic staff and newspaper	0% (n=0)	0.9% (n=2)	

# Pearson Chi-square

**Table 4.12 (continued):** Resources that influence the infant feeding practices of mothers

Characteristics	Indian mothers	Zulu mothers	P-value #
How to receive infant feeding information:			
Conversation with clinic staff and radio programme	0.4% (n=1)	0% (n=0)	0.559
Conversation with clinic staff and poster	0% (n=0)	0.4% (n=1)	
Conversation with clinic staff and video	0.4% (n=1)	0% (n=0)	

# Pearson Chi-square

The factors that influenced infant feeding practices included the availability of time, money, access to safe, clean drinking water and access to health care facilities. The majority of mothers had secondary school education (Table 4.3), did not work (Table 4.4) and was not within the walking distance of their local clinic (Table 4.12), with significant differences between the two groups surveyed. Many Zulu mothers reported staying with large number of family members compared to Indian mothers. Majority of Indian mothers (92.4%) had access to tap water when compared to Zulu mothers (51.1%). From those Zulu mothers who received drinking water from outside the house (48.9%), only 20% did clean the water before drinking. Significantly more Indian mothers had a say in income expenditure and living with the infant's father than Zulu mothers ( $p<0.000$ ). Most mothers from both groups (91.6% Indian and 92% Zulu mothers), cited their local clinic as the main place where they would like to receive information about infant feeding and in order to receive this information they preferred to have a personal conversation with the clinic staff.

The majority of mothers from both groups attended antenatal clinic visits (Indian 99.1% and Zulu 98.2%). Immunization was reported as the main reason for mothers using the clinic for Indian (44.4%) and Zulu (49.8%) mothers respectively. There was a significant difference between race and main reason for using the health care facility ( $p<0.000$ ).

## **4.7 CONCLUSION**

According to the racial distribution per clinic, an estimated period for data collection had to be extended due to low number of Indian mothers who attended the clinics in a day. Socio-demographic results showed that there was a significant difference between race and the characteristics of the participants. The data indicated that infant feeding practices were somehow similar for both groups, except two practices which were giving a pacifier/dummy to infants and foods/ liquids in addition to breast milk to infants before six months. In terms of knowledge, attitudes, perceptions and beliefs of participants regarding infant feeding practices, results showed that some practices were different. Clinic-based health workers and participants had an influence on the infant feeding practices, however it was significantly different for both groups. Results showed that the availability of resources that could influence infant feeding practices was significantly different among Indian and Zulu mothers.

## **CHAPTER FIVE**

### **DISCUSSION**

#### **5.1 INTRODUCTION**

The primary aim of this study was to determine and compare the current infant feeding practices and related factors that could influence these practices of Indian and Zulu mothers with 0-9 month old infants attending well baby clinics in Durban-North. It has been shown that South Africa still has poor infant feeding practices, mothers introduce complementary feeding at a very early age, fail to breastfeed exclusively and mixed feed infants (Siziba *et al.*, 2015). To our knowledge, this is the first study in South Africa, especially in KZN to target Indian mothers and to compare their infant feeding practices with Zulu mothers. Therefore, this chapter provides information on the results of the study relating to the literature reviewed.

#### **5.2 SOCIO-DEMOGRAPHIC CHARECTERISTICS**

This study has established that there was a significant difference between race (Indian and Zulu mothers) and socio-demographic status in terms of education level, household status, access to safe drinking water, employment, and source of income as well as total household income. This study reported that majority of Zulu mothers stayed with many family members using a minimum total income which is below the poverty line (R5544 / household with four family members), as compared to Indian mothers. More Indian mothers lived with the infant's father, reported that the main source of income comes from the infants' fathers and that they had a say on how the income is spent. Education plays an important role in labour market outcome which in turn reduces the risk of poverty (Statistics SA, 2017; Abu-Saad & Fraser, 2010). Majority of mothers in both groups had secondary level of education and only 15.1% of Zulu mothers and 4.4% of Indian mothers reported to have completed tertiary education, this may have an impact on the poor employment status in this study. Hence, the report from Statistics SA (2017) which showed unemployment rate was 31.2% and 7% for those with education level of less than matric and graduates respectively. This shows that unemployment rate is a problem in South Africa.

UNICEF and WHO (2011) stated that Sub-Saharan Africa had poor access to safe sources of drinking water. Literature also reported that infant formula is expensive and requires adequate time, safe and clean water, it was assumed that poor living conditions were more likely to lead mothers to choose breastfeeding as an infant feeding option (Labiner-Wolfe *et al.*, 2008). This could be true for Zulu mothers in this study, as the results show that their poor living conditions may have lead 64% of Zulu mothers to choose exclusive breastfeeding as an infant feeding option due to lack of access to safe drinking water, high unemployment rate and living with many family members in a household with a minimum income to survive. Even the mothers who collected drinking water from an outside household, not all of them cleaned their water before drinking. This in turn could have an effect on infant feeding and increase diarrhoeal diseases and child mortality (Danso, 2014). More Indian mothers had access to safe clean drinking water inside the household, had a say in income expenditure with better living conditions, which could have made formula feeding a convenient choice.

### **5.3 INFANT FEEDING PRACTICES**

Siziba *et al.* (2015), reported that early introduction of complementary foods, mixed feeding and failure to EBF were the predominant challenges in infant feeding practices in South Africa. This could be true when referring to the results of this study on Table 4.7. Minimal differences were found in this study, regarding infant feeding practices among Indian and Zulu mothers. Both groups had high breastfeeding initiation immediately after birth, even though 30.7% of Indian and 16.7% of Zulu mothers stopped breastfeeding before six months. This study agrees with Siziba *et al.* (2015), in the study conducted in four provinces of SA that breastfeeding initiation rate is high in the country. Even previous studies by Ghuman *et al.* (2009) & Mhlanga (2008) reported that breastfeeding initiation rate was between 75-97% in SA. A study conducted in twenty-three hospitals in KZN found that majority of mothers was EBF, however only 36% infants older than three months were still breastfed exclusively (Seonandan & McKerrow, 2016). Similar findings were found in this study as only 37.8% of Indian and 64% of Zulu mothers were EBF under six months, with 55.7% Indian and 58.8% Zulu mothers stopped breastfeeding in less than four weeks after the infant's birth.

Insufficient breast milk was reported by various studies as the reason for early cessation of breastfeeding (Wanjohi *et al.*, 2017; Gewa & Chekemboi, 2016; Matsuyama *et al.*, 2013; Njai

& Dixey, 2013; Zulliger *et al.*, 2013; Arts *et al.*, 2011; Kimani-Murage *et al.*, 2011; Nor *et al.*, 2011; Ghuman *et al.*, 2009; Oommen *et al.*, 2009; Hurley *et al.*, 2008; Ochola, 2008). Similar findings were reported in this study as “too little milk” was mentioned by mothers as the second main reason for stopping breastfeeding (18% Indian and 20.6% Zulu mothers). Some mothers gave their infants infant formula before returning to work, so that the infants could get accustomed to infant formula (Maharaj & Bandyopadhyay, 2013). This study found that (27.9%) Indian and (26.5%) Zulu mothers stopping breastfeeding citing the reason of going back to work. Consequently, these mothers could have been introduced infant formula to their infants. Khanal *et al.* (2013) & Bandyopadhyay (2009) stated that pre-lacteal feeds were given to infants before initiation of breastfeeding. This study also found that 15.6% Indian and 14.2% Zulu mothers gave pre-lacteals to their infants. Main pre-lacteal feeds reported were plain water, other milk except breast milk and glucose water in a study conducted in twenty-two countries in sub-Saharan Africa (Berde & Ozcebe, 2017). Early introduction of supplementary feeds and mixed feeding was found to be common in SA by Ijumba *et al.* (2014); Mhlanga, 2008 & Mushaphi *et al.* (2008). Mixed feeding was also reported in this study with 31.1% Indian and 15.6% Zulu mothers and early introduction of supplementary feeds was noticed with 49.3% Indian and 35.9% Zulu mothers introduced solids and /or liquids in less than a month of birth. This study found that most mothers reported that their infants were satisfied after being breastfed. This is contrary because some of the mothers stopped breastfeeding, and introduced solids and / or other liquids before infants turned six months citing that infants were hungry or breast milk was weak or too little.

### **5.3.1 Knowledge, attitudes, perceptions and cultural beliefs regarding infant feeding practices**

Various studies reported that mothers had knowledge on infant feeding especially, EBF and the importance of breastfeeding (Siziba *et al.*, 2015; Agunbiade & Ogunlege, 2012; Essien *et al.*, 2009). Similar findings from this study, showed that majority of mothers from both groups received infant feeding information pre-and post-natal, even though there was a significant difference between the race and infant feeding education postnatal. More Indian mothers were educated on infant feeding education than Zulu mothers, yet more than three quarters (78.7%) of Zulu mothers followed the advice as compared to only 56.5% of Indian mothers who reported following the advice. However, even though mothers were aware of



the appropriate infant feeding practices, some did not practice it with Indian mothers (n=24) saying they had to go back to work and Zulu mothers (n=10) felt their infants were not getting satisfied. Breast milk protects infants against infectious diseases and boost immunity (WHO, 2014). The main reason reported for breastfeeding in this study was for the infant to be strong and healthy, which in turn prevent illnesses. According to SADHS 2016, forty-five percent of infants under the age of six months were fed using a bottle with a teat; hence this practice has been discouraged as it causes the risk of illness to the child (NDOH *et al.*, 2017). This practice was also found in this study, with Indian mothers (n=127) and Zulu mothers (n=69) reported using bottle to give liquids other than breast milk.

Mothers introduced complementary foods as early as in within the first month, saying that breast milk alone is not enough for the infant (Van der Merwe, 2013). Similar findings were found that insufficient milk resulted to mixed feeding and/ or early introduction of complementary foods (Maharaj & Bandyopadhyay, 2013; Zulliger *et al.*, 2013; Nor *et al.*, 2011; Ghuman *et al.*, 2009). Gitonga (2014) reported that mothers felt that breast milk alone was insufficient; therefore, other foods were given to the infants earlier than six months of age to prevent hunger and to keep the infant happy. Another study found that mothers believed that infants were more likely to get hungry because they were at work which resulted in the early introduction of solids (Agedew *et al.*, 2014). Similarities were noted in this study to the previous studies. More Indian mothers in this study reported going back to work as the main reason for early introduction of other foods or liquids, followed by too little milk then hungry baby. Whereas, Zulu mothers reported infant not getting full or satisfied with breast milk alone, followed by going back to work then breast problems. Research showed that Indian mothers did not breastfeed exclusively due to traditional practices (Maharaj & Bandyopadhyay, 2013; Bandyopadhyay, 2009). According to McKenna & Shankar (2009), it was a norm for Hindu and Muslim communities to feed sweets to newborns as this practice is deeply rooted in their cultural and religious practices. However, in this study only one Indian mother indicated that something else was given to the infant in addition to breast milk. According to Tariku *et al.* (2016), pre-lacteal feeds were given to infants to maintain tradition. However, in this study Indian infants were given pre-lacteal feeds mainly because their mothers were ill, while Zulu infants were given because their mother's breast milk was not coming out.

### **5.3.2 Influence of family, friends and clinic-based health workers on infant feeding practices**

A study conducted in KZN by Swart *et al.* (2010), showed that some mothers decided without the influence from other individuals when it comes to infant feeding. Similar findings from this study showed that majority (80.2%) of Indian and (70.6%) of Zulu mothers made their own decision to give infant something other than breast milk. Various studies have shown that it is important to involve family members especially grandmothers or mothers-in-law because they have an understanding of infant feeding practices (Bhutta *et al.*, 2013; Ku & Chow, 2010; Grassley & Eschit, 2008; Kerr *et al.*, 2008). However, results from this study showed very few grandmothers influenced mothers to give infants something else other than breast milk, which may reflect that majority of grandmothers wanted mothers to breastfeed only.

Research conducted in Eastern Cape showed that fathers were unknowledgeable regarding infant feeding (Osborne, 2013). Another study in Gambia reported that fathers played an influential role in the early introduction of complementary foods (Njai & Dixey, 2012). Very few fathers in this study (4.1% Indian) and (1.5% Zulu) influenced mothers to give infants something else. This may show that fathers are involved in infant feeding or unknowledgeable. This study revealed that some clinic staff did influence mothers (8.3% Indian and 11.8% Zulu) to give something other than breast milk. This may show lack of knowledge from health workers, or they used their own attitudes or past experiences to influence mothers not practice appropriate infant feeding. The above result agrees with Brown *et al.* (2011) and Lamontage *et al.* (2008) that health workers may provide confusing information regarding infant feeding practices, which could have a negative influence on breastfeeding. Flaherman *et al.* (2015) also reported that some health workers may advice mothers to give infant formula to breastfed infants when the infant was not gaining enough weight.

According to Sapna *et al.* (2009) mothers should be receiving infant feeding information during antenatal care. Nursing staff were the predominant source of antenatal and postnatal education in this study. Maharaj & Bandyopadhyay (2013) & Britton *et al.* (2007) reported that health professional's support and counselling can improve breastfeeding rate, especially

early breastfeeding initiation as well as the extended duration of breastfeeding and build mother's confidence to breastfeed. Support after delivery had been identified as a way of assisting mothers with breastfeeding problems and building mother's confidence while increasing breastfeeding duration (Ahmed, 2008; Britton *et al.*, 2007). The statistical significance indicates that Indian mothers had different knowledge, attitude, perceptions and beliefs regarding infant feeding practices as compared to Zulu mothers.

### **5.3.3 Resources that could influence infant feeding practices**

In South Africa, millions of people have to travel more than thirty minutes to reach their usual health facilities (Statistics SA, 2011). Meaning most people live far from the clinics. This may be true with the results from this study show that less than a quarter (34.7%) of Indian mothers and about half (49.8%) of Zulu mothers said the clinic was located within a walking distance. This means mothers took more time to reach to the clinics, and that could have an impact on their attitude during health education. The attitude a mother has towards infant feeding can influence their infant feeding practices (Giles *et al.*, 2010). Access to clean safe water is essential to facilitate safe formula preparation. However, as reported earlier that majority of Indian mothers surveyed had access to tap water inside the house which could have made formula feeding a convenient choice as compared to Zulu mothers. Research has shown that health education about infant feeding at health facilities have an important role in the choices mothers make regarding early infant feeding (Van der Merwe, 2013; Zulliger *et al.*, 2011). Feldman-Winter *et al.* (2010) reported that training of health workers is crucial as it improve breastfeeding initiation and increase EBF practices. The ongoing or refresher trainings might assist to reduce confusion and improve skills of health workers, as shown in this study that some health personnel advised mothers to give infants other liquids/solids than breast milk. Local clinic was found to be the main place mothers preferred to receive information about infant feeding through personal conversation with clinic staff. This means mothers have confidence on the clinic staff, however more especially when having individual counselling.

## **5.4 CONCLUSION**

This study confirmed that breastfeeding is a universal infant feeding practice, with high breastfeeding initiation but established the failure of mothers to breastfeed exclusively for six months. Socio-demographic characteristics such as education level, employment, household status, access to safe drinking water and household income may influence the infant feeding practices for both groups, even though their living conditions are not on the same level. Minimal differences were noted concerning infant feeding practices between the two groups of mothers. Knowledge, attitudes, perceptions and beliefs could influence infant feeding practices, as some mothers (both Indian and Zulu) were aware of the appropriate infant feeding practice but did not follow it. Clinic-based nursing staff were reported as the predominant source of infant feeding information by both groups during antenatal and postnatal. However, some mothers made their own decision to not practice appropriate infant feeding.

## **CHAPTER SIX**

### **RECOMMENDATIONS**

#### **6.1 RECOMMENDATIONS FROM THE STUDY**

Based on the critical analysis of the literature and results of this study the following recommendations were made:

- Infant feeding education should focus on alleviating the misconceptions mothers have on exclusive breastfeeding such as the perception of insufficient breast milk production and emphasis on expressing breast milk for infants to consume when mothers are away.
- Emphasis on the dangers of mixed feeding during health education as some of the mothers in both groups mixed their infants.
- Antenatal infant feeding education needs to commence as early as possible during pregnancy and should be done on all antenatal care visits.
- Mothers should get support more especially immediately after delivery and few days postnatal because this is a critical time for mothers to lose confidence on appropriate infant feeding practices.
- Mothers who opt to formula feed should be provided with the necessary information and demonstration in order to prepare and feed effectively and safe.
- It is imperative to ensure that practices and behaviours in the clinics always protect, promote and support breastfeeding. Health workers should attend refresher courses on lactation management in order to improve their confidence and skills to disseminate accurate information to mothers, as this study shown that they are the important source of infant feeding information.
- Involvement of family members during antenatal care and community support groups are important for the success of appropriate infant feeding practices.

## **6.2 SUGGESTIONS FOR FURTHER RESEARCH**

The following suggestions are established from the current study:

- Based on the low numbers of Indian mothers compared to Zulu mothers sampled at Tongaat Community Health Centre, further research should be conducted with an extended period to get more information regarding infant feeding practices of Indian mothers or in another health care setting attended by more Indian community. The low numbers of Indian mothers attending Tongaat CHC led to the increase of the age of the targeted infants to nine months. This was also caused by time and financial constraints.
- Similar research is necessary at a private health setting in order to compare the infant feeding practices with public health facilities in order to develop appropriate nutrition interventions for both settings.

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**Infant feeding practices in urban and rural southern Katanga communities in Democratic Republic of Congo** Toni Kasole Lubala, Olivier Mukuku, Augustin Mulangu Mutombo, Nina Lubala, Frank Nduu Naweji, Paul Makan Mawaw, Oscar Numbi Luboya  
*JMedical Research* 2016; 2(3): 65-70 May- June ISSN: 2395-7565

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## **ANNEXURE I**

<b>Participant information and informed Consent Form</b>
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### **Study Title:**

Current infant feeding practices and related factors of Indian and Zulu mothers with 0-6 month old infants attending postnatal and well-baby clinics in Durban-North, KwaZulu-Natal.

Dear Participant,

My name is Zanele Prudence Mkhize, I am a registered Nutritionist who is currently busy with her Masters of Science in Human Nutrition, at University of KwaZulu-Natal.

You are hereby invited to participate in a study investigating the current infant feeding practices and related-factors influencing these practices among Indian and Zulu mothers with 0-6 month old infants.

### **The purpose of the study**

Giving the baby breast milk only in the first six months of life of an infant, no water, juice, or other solids (exclusive breastfeeding) plays a vital role in an infant's health, since the infant organs are not fully developed at this stage of life. Exclusive breastfeeding protects the infant from getting illnesses and reduce risk of HIV transmission as the breast milk strengthens the gut lining and immune system of the infant. Malnutrition (incorrect nutrition) result from poor feeding practices and this lead to many children dying. Breastfeeding also help mother lose weight, reduce bleeding and risks of developing various cancers.

The aim of this study is to determine and compare the current infant feeding practices and mothers' knowledge, attitudes, perceptions and beliefs regarding infant feeding practices as well as potential challenges that can prevent exclusive breastfeeding among Indian and Zulu mothers with 0-6 month old infants.

### **Study Procedure:**



You will be requested to participate in an interview conducted by a trained fieldworker that will last approximately 20 minutes.

It is important to know that:

- Participation is voluntary.
- There are no physical or emotional risks involved in participating in the study.
- You have the right to withdraw from the study at any time without any negative consequences or discrimination.
- During the interview, the fieldworker will have to read through your infant's Road to Health Booklet in order to obtain information such as infant's birth weight, as this is important information needed for the study.
- All data collected will be treated as anonymous as subjects will be assigned a code on the research questionnaire. So, instead of your name appearing on the questionnaire you will be given a code known only by the researcher and fieldworker. Hence, it would not be possible to trace any data set back to an individual participant.
- After the completion of the study, a summary report with key findings will be presented in the clinics and in a poster format will be displayed in the clinics for community, including participants.
- No payment will be given for your participation.

**Benefits to participating in the study:**

- If you are found to be stressed and the child do not have grant, with your consent, you will be referred to the clinic counsellor, nurse, social worker and a doctor for further assessment and referred to appropriate channels to apply for a social grant.
- If you have poor feeding practices, with your consent, you will be referred to the clinic nurse or nutrition advisor or nutritionist/dietician.

## ETHICS:

This research project was approved by the Human & Social Science Research Ethics Committee (HSSREC) of UKZN to ensure that the research meets ethical standards. However, should you have any concerns, please feel free to contact the researcher, study supervisors or ethics committee as per following contact details:

<b>Researcher:</b> Zanele Mkhize Cell: 079 113 9321 Email: <a href="mailto:zanele.mkhize2@kznhealth.gov.za/zanelemk85@gmail.com">zanele.mkhize2@kznhealth.gov.za/zanelemk85@gmail.com</a>	<b>Human and Social Science Research Ethics Committee (HSSREC)</b>  Mrs Mariette Snyman Tel: (031) 260 8350 Fax: (031) 260 3093 Email: <a href="mailto:snymanm@ukzn.ac.za">snymanm@ukzn.ac.za</a>
<b>Study Supervisors:</b> Dr Suna Kassier Tel: (033) 260 5431 Email: <a href="mailto:kassiers@ukzn.ac.za">kassiers@ukzn.ac.za</a> Prof Frederick Veldman Tel: (033) 260 5453 Email: <a href="mailto:veldmanf@ukzn.ac.za/fjveldman@yahoo.co.uk">veldmanf@ukzn.ac.za/fjveldman@yahoo.co.uk</a>	

Thank you for your time and cooperation.

Sincerely,

Zanele Mkhize

Should you be willing to participate, please consent by signing the informed consent form on the next page.

Informed Consent Form
-----------------------

I, \_\_\_\_\_ hereby declare that I have read and understood the above information. I had the opportunity to ask questions and was satisfied with the way in which my questions were answered. In addition, I understand the purpose of the study as well as the benefits. I understand my participation is voluntary and I may exit from the study at any point should I wish to do so without any negative consequences or discrimination. I am aware that I can contact the researcher at any time should I require clarification regarding the study or its purpose, as well as my rights as a participant.

I hereby consent to voluntary participate in the above mentioned study.

\_\_\_\_\_  
Name and Surname

\_\_\_\_\_  
Signature of Participant

\_\_\_\_\_  
Date

## ANNEXURE II

### ULWAZI LOPHENDULAYO KANYE NEFOMU YEMVUME

Isihloko socwaningo:

**Izindlela ezisetshenziswayo zokondla nezinye izinto ezinomthelela ngendlela omama bamaZulu nabamaNdiya abondla ngayo abantwana abazelwe kuya ezinyangeni eziyisithupha abahamba umtholampilo wezingane, umkhandlu weTheku, KwaZulu-Natali.**

Sawubona,

Igama lami nginguZanele Prudence Mkhize, ngingumaluleki ngezokudla osemthethweni, okwamanje ngenza izifundo zemfundo ephakeme kwi-Masters ye Sayensi ngezokudla kwabantu eNyuvesi yaKwaZulu-Natal.

Uyamenywa ukuba ube yingxenye yocwaningo olumayelana nokondla umntwana wakho, kusukela emntwaneni ozelwe kuya ezinyangeni eziyisithupha. Ucwanningo futhi luzobheka umehluko phakathi kwezindlela abantwana abondliwa ngayo phakathi komama bamaZulu nomama bamaNdiya.

#### **Inhloso yalolucwaningo**

Ukunika umntwana ubisi lwebele kuphela izinyanga eziyisithupha zokuqala empilweni, unganiki amanzi, ijuzi, nezinye izinhlobo zokudla (ukuncelisa ubisi lwebele kuphela) kudlala indima enkulu empilweni yomntwana, njengoba izitho zakhe zangaphakathi zisuke zingakakhuli ngokwanele kulesikhathi sempilo. Ukuncelisa ubisi lwebele kuphela kuvikela umntwana ezifweni kunciphise namathuba okuthetheleka kwisandulela ngculazi njengoba ubisi lwebele luqinisa ingaphakathi lomgudu wokudla kanye namasosha omzimba omntwana. Ukungondleki kudalwa izindlela okungezona zokondla umntwana futhi loku kwenza ukuthi kushona izingane eziningi. Ukuncelisa ubisi lwebele kusiza nomama ukuthi anciphe emzimbeni, kunciphisa ukopha nobungozi bokuba nezinhlobo ezahlukene zomdlavuza.

Inhloso yalolucwaningo ukuthola nokuqhathanisa indlela okondliwa ngayo abantwana, kanye nolwazi lomama, indlela abukangayo, indlela aqondangayo nenkolelo mayelana nokondliwa kwabantwana, nezingqinamba ezingavimbela ukuncelisa ubisi lwebele lodwa komama bamaZulu nabamaNdiya abanezingane ezizelwe kuya ezinyangeni eziyisithupha.

### **Inqubo yocwaningo:**

Uzocelwa ukuba uphendule imibuzo yalolucwaningo ezokwenziwa umcwaningi oqeqeshiwe ezothatha imizuzu engamashumi amabili kuya kwamashumi amathathu.

Kubalulekile ukwazi loku okulandelayo:

- Awuphoqelekele ukubamba iqhaza.
- Abukho ubungozi obukhona uma ubamba iqhaza kulolucwaningo.
- Unalo ilungelo lokuhoxa nanoma yisiphi isikhathi ngaphandle kokujeziswa nangokucwaswa.
- Ngesikhathi socwaningo, umcwaningo uzocela ukufunda ibhuku lomntwana lomgomo ukuze athole ulwazi olunjengesisindo somntwana sokuzalwa, lolulwazi lubalulekile kakhulu luyadingeka kulolucwaningo.
- Lonke ulwazi oluzoqoqwa luzoba imfihlo, njengoba ababambe iqhaza bazonikezwa ikhodi ezobhalwa ngesikhathi sombuzo. Kunokuthi kuvele igama lakho kuzovela ikhodi ezokwaziwa umcwaningi nomsizi wakhe kuphela. Ngaleyondlela ngeke kwenzeke ukuthi kutholakale ukuba ubani obethini.
- Emuva kokuqeda ucwaningo, kuzobhalwa umbiko ofinqiwe ngemiphumela oyobe usuthulwa emtholampilo wakho kanye neposta eyobekwa emtholampilo wakho eyobonwa umphakathi kanye nababambe iqhaza kucwaningo.
- Ayikho into ozoholelwa yona ngokubamba iqhaza.

### **Inzuzo ngokubamba iqhaza:**

- Uma kutholakala ukuthi unengcindezi noma umntwana wakho akasitholi isibonelelo sabantwana sahlumeni, uyothunyelwa kosonhlalakahle, ikhansela lasemtholampilo, unesi kanye nodokotela ukuze kulandelelwa imigudu okuyiyo yokubhalisela isibonelelo somntwana.
- Uma umntwana wakho engondlekile, ngemvume yakho uzothunyelwa kunesi okanye umeluleki wezodla emtholampilo.

### **Izimiso zokuhle:**

Lolucwaningo lugunyazwe ngabakwa Human & Social Science Research Ethics Committee (HSSREC) eNyuvesi YakwaZulu Natali ukuqiniseka ukuthi lolucwaningo luyahlangabezana nezidingo zokuziphatha. Kepha-ke uma uneminye imibuzo sicela ukhululeke uthinte umcwaningi, abaqondisa ucwaningo noma ikomidi le-ethics. Imininingwane yokuxhumana ithi:

<b>Umcwangingi:</b> Zanele Mkhize Cell: 079 113 9321 Email: <a href="mailto:zanele.mkhize2@kznhealth.gov.za/zanelemk85@gmail.com">zanele.mkhize2@kznhealth.gov.za/zanelemk85@gmail.com</a>	<b>Ikomidi laka Human and Social Science</b> <b>Research Ethics (HSSREC)</b>  Mrs Mariette Snyman Ucingo: (031) 260 8350 Isikhahlamezi: (031) 260 3093 Email: <a href="mailto:snymanm@ukzn.ac.za">snymanm@ukzn.ac.za</a>
<b>Abaqondisi:</b> Dr Suna Kassier Ucingo: (033) 260 5431 Imeyili: <a href="mailto:kassiers@ukzn.ac.za">kassiers@ukzn.ac.za</a> Prof Frederick Veldman Ucingo: (033) 260 5453 Email: <a href="mailto:veldmanf@ukzn.ac.za/fjveldman@yahoo.co.uk">veldmanf@ukzn.ac.za/fjveldman@yahoo.co.uk</a>	

Siyabonga ngesikhathi sakho nangokubambisana.

Ozithobayo,

Zanele Mkhize

Uma uvuma ububa yingxenyeyocwanningo sicela ugqwalise ifomu ekhasini elilandelayo.

#### IFOMU YEMVUME UKUBAMBA IQHAZA

Mina ..... ngiyavuma ukuthi ngifundile futhi ngiyizwe kahle yonke imininingwane echazwe ngenhla. Nginikeziwe ithuba lokubuza imibuzo futhinganeliseka ngendlela imibuzo yami ephendulwe ngayo. Ngaphezu kwalokho,ngiyaqonda inhloso yocwanningo nokuthi futhi ngizozuzani ngokuba yingxenyeyocwanningo. Ngiyaqonda ukuthi ngizobamba iqhaza ngokuzithandela futhingikhululekile ukuthi ngihoxe nganoma ngasiphi isikhathi uma ngifisa ukwenza kanjalongaphandle kokujeziswa nokucwaswa. Ngiyaqaphela ukuthi ngingakwazi ukuthintananomcwanningi nganoma yisiphi isikhathi uma ngifuna ukucaciselwa mayelananalesifundo noma inhloso yaso, kanye namalungelo ami njengomuntu oyingxenyeyocwanningo.

Ngiyavuma ukuba yingxenyeyocwanningo oluchaziwe ngaphezulu futhi angilindele mvuzo.

\_\_\_\_\_  
Igama nesibongo

\_\_\_\_\_  
Sayina

\_\_\_\_\_  
Usuku

### Annexure III: Interview schedule

Topic	Discussion
<i>Introduction</i>	Interviewers name
<i>Topic of interview</i>	I would like to ask you few questions regarding your background, education, your knowledge regarding feeding practices, factors influencing your current practices, an any potential challenges not to exclusive breastfeed your child.
<i>Aim of interview and responses</i>	I just want to get information about you and the feeding practices so that we can understand the current infant feeding practices and if there are any factors influencing the way you feed your child. There are no right or wrong answers to any of the questions.
<i>Explaining note taking</i>	I (fieldworker) will be writing down all the answers to the questions you are asked, so that we have a record of what you have said.
<i>Confidentiality</i>	This interview is strictly confidential. This means that your name will not be recorded during the interview, therefore, it will not appear in the research report or in any other publication containing the results of this study.
<i>Check understanding</i>	Do you understand?
<i>Clarification needed</i>	Do you have any questions?
<i>Questionnaire section A (Socio-demographic)</i>	I would like to begin by asking you about your infant, your education, where you work, who you live with and so forth.
<i>Questionnaire Section B (Infant feeding practices)</i>	Then I will ask you what and how you feed your infant, your feeding experience and whether you receiving support.
<i>Questionnaire Section C (Mother's knowledge, attitude, perception and belief)</i>	After that, I will ask you about your knowledge, perception and beliefs regarding infant feeding.
<i>Questionnaire section D (Resources could influence infant feeding)</i>	Lastly, I will ask you about the reasons that make you not to breastfeed exclusively.
<i>Clarification needed</i>	Do you have any questions?
<i>Closing</i>	We have reached the end of this interview. Thank you very much for taking the time to answer my questions. After the completion of the study, a summary report will be presented in the clinics and displayed in a poster in the clinics. Please take this...this is just to say thank you for participating in the study.

### Annexure III (Cont...): English version of survey questionnaire

#### Current Infant Feeding Practices and Related Factors of Indian and Zulu Mothers with 0-6 Month Old Infants Attending Postnatal and Well-baby Clinics, eThekweni District, KwaZulu-Natal.

**FOR ADMINISTRATIVE USE:**

Name of field worker: .....

Date: .....

Respondent/infant code: .....

**Clinic from which respondent was recruited:**

Tongaat Community Health Centre 1

Trenance Park Clinic 2

Verulam Clinic 3

**Respondent's race:**

Indian 1

Zulu 2

**Current feeding method:**

Exclusive Breast feeding (EBF) 1

Mixed feeding 2

Formula feeding/ bottle feeding 3

**Good morning/ afternoon**

- **ARE YOU THE MOTHER OF THIS BABY?**
- **IS THIS BABY NOT ONE OF A TWIN?**
- **HAVE YOU NOT RECEIVED ANY FORMAL TRAINING IN NUTRITION (for example nutrition diploma/degree, nurse, doctor, nutrition advisor, community health worker course)?**

**NOTE TO FIELD WORKER: IF THE RESPONSE TO ALL THE ABOVE QUESTIONS IS YES, PROCEED WITH THE INTERVIEW. SHOULD THE RESPONSE BE NO, THANK THE RESPONDENT AND SELECT THE NEXT PROSPECTIVE PARTICIPANT.**

I am gathering information for a Masters in Human Nutrition at University of KwaZulu-Natal about the feeding of babies in your area. This questionnaire takes about **20 minutes** to complete. During this interview, I will ask you questions about how you feed this baby. There are no right or wrong answers. All your answers are anonymous and will be kept confidential. It is your right to refuse answering questions that you are uncomfortable with and/or request that you do not wish to be interviewed any further.

**Would you be prepared to answer my questions?****No – Thank you very much for your time****(Proceed to next prospective participants)****Yes – Thank you very much. Would it be convenient for you to answer my questions now?****PROCEED WITH THE INTERVIEW**



---

1. Delivery History:

(a) Place of delivery:

(i) Health Facility	1
(ii) Home	2

(b) Type of delivery:

(i) Normal	1
(ii) Ceasarean	2

2. Infant's date of birth:

Year.....Month.....Day.....

(Note to field worker: correlate the above with the infant's "Road to Health Booklet")

3. Infant's gender

Male	1
Female	2

4. **In terms of the age strata of this study sample, in which age category would this infant fall in:** (For ADMINISTRATIVE USE ONLY)

0 – less than 6 weeks	1
6 weeks – less than 14 weeks	2
14 weeks to six months	3

5. Infant's birth weight.....kg

(Note to field worker: check against infant's "Road to Health Card")

6. Did this infant weigh less than 2.5 kg at birth? **(FOR ADMINISTRATIVE USE ONLY)**

Yes	1
No	2

7. What is your age?.....years

8. What is your complete level of education:

No school education	1
Grade 1 – 7 (primary school)	2
Grade 8 – 12 (secondary school)	3
Tertiary education	4

9. How many years did you spend in school?

.....years

10. How many other children (apart from this infant) do you have?

\_\_\_\_\_

11. Are you currently working? If **NO**, proceed to **Q14**

Yes	1
No	2

12. If YES, for how many days of the week do you work?

1 day	1
2 days	2
3 days	3
4 days	4
5 days	5
6 days	6
7 days	7

13. If YES, for how many hours are you usually away from home?

.....

14. What sources of income does this infant's family depend upon? **(Note to field worker: may indicate more than one response)**

Full time employment	1
Part time / casual employment	2
Self employed	3
Child support grant	4
Pension or disability grant	5
Child maintenance	6
Other. Please specify	7
_____	
_____	

15. Do you have any say in how the household income is being spent?

Yes	1
No	2

16. What is the total income of the household where the infant lives?

0 – R500 per month	1
R500 – R1000 per month	2
R1000 – R2000 per month	3
R2000 – R3000 per month	4
R3000 – R4000 per month	5
R4000 and above higher	6

17. Do you live with father of this child?

Yes	1
No	2

18. How many people (besides the study infant) sleep in the house where the infant lives?

One	1
Two	2
Three	3
Four	4
Five	5
Six	6
Seven	7
Eight or more	8

19. How many bedrooms are there in the house that the infant lives?

One	1
Two	2
Three	3
Four or more	4

20. Where do you get your drinking water?

Bore hole	1
River/ stream/ dam	2
Rain water in tank (e.g. JoJo tank)	3
Tap in house	4
Communal tap (outside house)	5
Other. Please specify. _____ _____	6

21. If you obtain drinking water from a source outside the home, do you do anything to it before drinking it?

Yes	1
No	2

22. If YES, what do you do to it? **(Note to field worker: asked as open – ended question)**

Add Jik	1
Boil	2
Other	3

23. Are there health care facilities (e.g. clinics) within walking distance from the infant's home?

Yes	1
No	2

24. Did you go for health check-ups at health care facilities such as a clinic or hospital while you were pregnant with this infant?

Yes	1
No	2

25. If the answer to Q24 is **YES**, how often?

26. Did anybody talk to you about what to feed this baby while you were pregnant?

Yes	1
No	2
Can't remember	3

27. If the answer to Q26 is **YES**, complete the following table. **(Note to field worker: respondent may choose more than one option)**

Doctor	1
Nursing sister	2
Staff nurse	3
Nutrition advisor/Community health care worker	4
Family member. Please specify who. _____ _____	5
Another mother/friend/neighbor. Please circle which.	6

28. If the answer to Q26 is **YES**, were you educated on the following topics? **(Note to field worker: respondent may choose more than one option)**

Importance of exclusive breastfeeding	1
Importance of early initiation of breastfeeding	2
Importance of skin-to-skin contact immediately after birth	3
Importance of breastfeeding to the mother	4
The importance of feeding frequently to help assure enough milk	5
Good position and attachment (demonstration done by health worker)	6
Benefits of ARV's during breastfeeding	7
Risks and hazards of not breastfeeding	8
Importance of healthy lifestyle (Healthy eating, regular physical activity, discourage alcohol and drug use)	9
Importance of a companion (support from family, friends, partner)	10

29. Have you visited a clinic since the baby was born?

Yes	1
No	2

30. If the answer to Q29 is YES, how many clinic visits has the infant had since birth?

31. What do you most often use the clinic for **(Note to filed worker: respondent may choose more than one option)**

Infant illness	1
Own illness	2
Family planning	3
Immunization	4
Infant growth monitoring such as weight gain	5

32. Have you ever received information about how to feed **THIS** baby after the baby was born?  
If **NO**, proceed to **Q35**.

Yes	1
No	2

33. If the answer to **Q32** is **YES**, complete the following table: **(Note to field worker: respondent may choose more than one option)**

Doctor	1
Nursing sister	2
Staff nurse	3
Nutrition advisor/ Community health worker	4
Family member. Please specify who. _____ _____	5
Another mother/friend/neighbor. Please circle which.	6

34. Do you follow all or part of the advice about feeding **THIS** baby given to you at the clinic/hospital? **(Note to field worker: If the answer to Q31 was NO, do not ask this question)**

Yes	1
No	2

35. If the answer to **Q34** is **NO**, which part of the information did you not follow and why?

INFORMATION:	REASON:

36. If you have older children (other than the study infant) that were not breast fed, i.e. bottle fed, can you tell me why you bottle fed them?

.....

.....

.....

.....

37. For the study infant: If this infant has ever been breast fed but you have stopped, please answer the following questions:

For how long did you breast feed	Reason/s for breast feeding	Reason why breast feeding was stopped (If applicable)

38. For the past week, what has your baby been fed? **(Note to field worker: this question will be asked as an open-ended question, the grid that follows is for your use only and should not be stated as examples to the mother. More than one option may be indicated)**

Breast milk only	<b>1</b>
+ water	<b>2</b>
+ sugar water	<b>3</b>
+ tea	<b>4</b>
+ fruit juice	<b>5</b>
+ porridge	<b>6</b>
+ Nestum	<b>7</b>
+ Cerelac	<b>8</b>
+ Fruit/vegetables	<b>9</b>
+ Purity baby food	<b>10</b>
+ Infant formula	<b>11</b>
+ Cows milk	<b>12</b>
+ Nespray	<b>13</b>
+ Coffee creamers (Cremora)	<b>14</b>

Infant formula only	<b>15</b>
+ water	<b>16</b>
+ sugar water	<b>17</b>
+ tea	<b>18</b>
+ fruit juice	<b>19</b>
+ porridge	<b>20</b>
+ Nestum	<b>21</b>
+ Cerelac	<b>22</b>
+ Fruit/vegetables	<b>23</b>
+ Purity baby food	<b>24</b>
+ Cows milk	<b>25</b>
+ Coffee creamers (Cremora)	<b>26</b>

39. If your answer to **Q38** Is breast milk only, have you ever added any other liquids or foods to the baby's diet? (**Note to field worker: presence of exclusive breastfeeding is being determined here**)

Yes	1
No	2

40. At what age did you introduce other liquids or foods to the infant's diet?

---

41. What did you give?

.....

.....

42. If you have ever breast fed, has anyone ever shown you how to breast feed?

Yes	1
No	2

43. If the answer to **Q42** is **YES**, who?

.....

.....

.....

44. If you have ever breast fed, does it/did it hurt when you breast feed?

Yes	1
No	2

45. If you have ever breast fed, do you/did you feel that the infant is satisfied after a breast feed?

Yes	1
No	2
Don't know	3

46. If you have ever breast fed your baby, do you feed your baby "on demand" i.e. when the baby wants to feed.

Yes	1
No	2

47. If the baby was ever breast fed, when was the baby first introduced to breast milk:

Immediately after birth	1
Few hours after birth	2
The day after birth	3
Two days after birth	4
More than two days after birth	5
Don't know	6

48. If the baby was not given breast milk soon after birth, what was the baby given and what was the reason?

Specify pre-lacteal feeds	Reason

49. If the baby was ever breast fed, who influenced you to give your baby anything other than breast milk and why? **(Note to field worker: asked as an open-ended question. May indicate more than one response). Mother may need probing when it comes to giving reasons)**

WHO	
Own decision	1
Mother's advice	2
Mother in-laws advice	3
Grandmother's advice	4
Infant's father	5
Sister/other relative	6
Neighbours/friends	7
Clinic staff	8
REASON	
Hungry baby	1
Baby cried a lot	2
Too little milk	3
Weak milk	4
Mother ill	5
Baby ill	6
Baby refused breast	7
Mother went back to work	8
Breast problems e.g. sore nipples	9
Pregnant again	10



Other – please specify
-----
-----

50. If the baby receives liquids other than breast milk, how are liquids given to this baby?

Bottle	1
Cup	2
Spoon	3
Other. Please specify	4
-----	
-----	

51. Has anyone ever talked to you about how to use a bottle (formula) to feed your child?

Yes	1
No	2

52. If the answer to Q51 is YES, who spoke to you? **(Note to field worker: asked as open ended question)**

Clinic staff member	1
Mother/mother-in law	2
Friend	3
Other. Please specify.	4
-----	

53. Has anyone at the clinic ever shown you how to make a bottle for your baby?

Yes	1
No	2

54. Does your baby suck a dummy? **(Note to field worker: no need to ask if baby is sucking dummy at time of interview)**

Yes	1
No	2

55. What is the first reason that crosses your mind when your baby cries? **(Note to field worker: only ONE response may be given here)**

Baby is wet	1
Baby wants to be picked up	2
Baby is sick	3
Baby is hungry	4
Baby is cold	5
Other. Please specify	6
-----	

56. Where would you like to receive information on feeding your baby?

At my local clinic	1
In my home	2
At the local church hall	3
At the local school hall	4
Other. Please specify	5
-----	

57. How would you like to receive information on feeding your baby? **(Note to field worker: more than one response may be given):**

Personal conversation with clinic staff	1
Personal conversation with friend	2
Personal conversation with a relative	3
Group meeting with other mothers of infants	4
Radio programme	5
Television programme	6
Newspaper	7
Magazine e.g. Bona, Drum	8
Brochure to take home	9
Poster	10
Video	11
Other – please specify	12

58. If you were never shown how to breast feed **(Q42)**, would you have liked someone to have shown you how to breast feed or help you with breast feeding?

Yes	1
No	2

**THANK YOU FOR TAKING THE TIME TO ANSWER THESE QUESTIONS**

## Annexure IV: Zulu version of survey questionnaire

UMKHAKHA WEZESAYENSI NEZOLIMO  
UMNYANGO WESAYENSI YOKUDLA NENGCEBO  
YOMPHAKATHI  
INYUVESI YAKWAZULU-NATALI  
PRIVATE BAG X01  
SCOTTSVILLE  
PIETERMARITZBURG  
3209

**Izindlela ezisetshenziswayo zokondla nezinye izinto ezinomthelela ngendlela omama bamaZulu nabamaNdiya abondla ngayo abantwana abazelwe kuya ezinyangeni eziyisithupha abahamba umtholampilo wezingane, umkhandlu weTheku, KwaZulu-Natali.**

### OKWABAPHETHE:

Igama locwaningayo: .....

Usuku.....

Ikhodi yophendulayo: .....

### Umtholampilo okutholakale kuwo ophendulayo:

Tongaat Community Health Centre 1

Trenance Park Clinic 2

Verulam Clinic 3

### Uhlanga lophendulayo:

Umzulu 1

Umndiya 2

### Indlela yokondla usana:

Ukuncelisa ibele kuphela 1

Ukupha umntwana ibele nokunye ukudla 2

Ukupha umntwana ibhodlela/ubisi lwekopi 3

### Sawubona

- **UNGUMAMA WOMNTWANA?**
- **NGABE LOMNTWANA AKASILONA IWELE?**
- **AWUKAZE UTHOLE UKUQEQESHA OKUPHELELE NGOKONDLIWA KOMZIMBA (izibonelo iziqu zediploma/idigri yokondla umzimba, ubuhlelengikazi, ubudokotela, ukuba umeluleki kwezokudla okunomsoco, izifundo zokuba unompilo womphakathi)?**

**### QAPHELA MCWANINGI: UMA IZIMPENDULO ZAYO YONKE LEMIBUZO ENGENHLA KUNGU YEBO, QHUBEKA NEMIBUZO. UMA IMPENDULO KUBA NGU CHA, BONGA KULOWO OBEBUZWA EBESU UKHETHA OLANDELAYO ONGABAMBA IQHAZA.**

Ngigqoqela inyuvesi yakwaZulu Natali ulwazi ngokondliwa kwabantwana endaweni yangakini. Leli phepha lemibuzo lithatha isikhathi esingangemizuzu eyamashumi amabili ukuliphendula lonke. Kulenkulumbo-mpendulwano ngizokubuza imibuzo mayelana nokondliwa kwalo mntwana. Azikho izimpendulo ezilungile nezingalungile. Kuzozonke izimpendulo zakho igama lakho lizogodlwa futhi izimpendulo zizogcinwa ziyimfihlo. Uvumelekile ukuba ungawuphenduli umubuzo ongakuphathi kahle.

Ungathanda ukuthi uphendule imibuzo yami?

CHA – Ngibonga kakhulu isikhathi ongiphe sona  
(Dlulela kolandelayo ongaphendula)

YEBO – Ngibonga kakhulu. Ngabe kulungile ukuthi uphendule imibuzo yami manje?

#### QHUBEKA NEMIBUZO

1. Umlando wokubeletha:

a. Indawo yokubeletha:

i. Umtholampilo	1
ii. Ekhaya	2

b. Indlela yokubeletha:

(iii) Ukuzibelethela	1
(iv) Ukubeletha ngomthungo	2

2. Usuku lokuzalwa komntwana:

Unyaka.....Inyanga.....Usuku.....

(QAPHELA MCWANINGI: Hlanganisa lokhu okungasenhla ngokuqhathanisa nekhadi lomgomo lomntwana).

3. Ubulili bomntwana

Isilisa	1
Isifazane	2

4. Ngokohlelo lweminyaka wesampula yalolucwaningo, lungena ngaphansi kwaluphi uhla lweminyaka lalo mntwana: (Okokusetshenziswa ngabaphathi).

0 – 6 wamasonto	1
6 - 14 wamasonto	2
Ngaphezu kwamasonto awu-14 kuya ezinyangeni eziyisithupha (6).	3

5. Isisindo azalwe naso umntwana.....kg

6. Ngabe lomntwana wazalwa enesisindo esingaphansi kuka 2,5kg? **(OKWABAPHATHI)**

Yebo	1
Cha	2

7. Uneminyaka emingaki?.....

8. Uqede liphi ibanga lemfundo:

Akukho mfundo yasesikoleni	1
Ibanga 1 – 7 (Isikole samazinga aphansi)	2
Ibanga 8 – 12 (Isikole samazinga aphezulul)	3
Imfundo yezinga eliphakeme	4

9. Wahlala iminyaka emingaki esikoleni?

.....

10. Bangaki abantwana onabo ngaphandle kwalo?

.....

11. Uyasebenza njengamanje? Uma kuCha dlulela kumbuzo 14.

Yebo	1
Cha	2

12. Uma usebenza, usebenza izinsuku ezingaki esontweni?

Usuku olu-1	1
Usuku olu-2	2
Usuku olu-3	3
Usuku olu-4	4
Usuku olu-5	5
Usuku olu-6	6
Usuku olu-7	7

13. Uma impendulo kunguYEBO, uvame ukungabikhona ekhaya amahora amangaki?

.....

14. Umndeni womntwana uyithola kanjani imali yokuziphilisa? (**QAPHELA MCWANINGI: izimpendulo zingaba ngaphezu kweyodwa**)

Usebenza ngokugcwele	1
Ubamba itoho	2
Uyazisebenza	3
Uthola imali yahulumeni yesondlo sabantwana	4
Uhola impesheni noma imali youkhubazeka	5
Isondlo sengane	6
Okunye, uyacelwa ucacise	7
_____	
_____	

15. Unalo yini izwi ekusetshenzisweni kwemali engenihla?

Yebo	1
Cha	2

16. Singakanani isamba semali salapho kuhlala khona umntwana?

0 – R500 ngenyanga	1
R500 – R1000 ngenyanga	2
R1000 – R2000 ngenyanga	3
R2000 – R3000 ngenyanga	4
R3000 – R4000 ngenyanga	5
R4000 noma ngaphezulu	6

17. Uhlala naye uyise walo mntwana?

Yebo	1
Cha	2

18. Bangaki abantu (ngaphandle kwalo mntwana) abadala endlini okuhlala kuyo nomntwana, okungenani ngesonto?

Munye-babili	1
Bathathu	2
Bane	3
Bahlanu	4
Bayisithupha	5
Bayisikhombisa	6
Bayisishiyagalombili noma ngaphezulu	7

19. Inamakamelo amangaki indlu lapho kuhlala khona umntwana?

Linye	1
Mabili	2
Mathathu	3
Mane noma ngaphezulu	4

20. Uwatholaphi amanzi okuphuza?

Esiphethwini	1
Emfuleni/ umgobhozo/ idamu	2
Amanzi emvula ethangini	3
Umpompi wasendlini	4
Umpompi womphakathi (ngaphandle kwendlu)	5
Okunye – uyacelwa ucacise	6

21. Uma uthola amanzi okuphuza ngaphandle kwekhaya, kukhona yini oqale ukwenze kuwona ngaphambi kokuba uwaphuze?

Yebo	1
Cha	2

22. Uma kukhona, uye uwenzeni? **(QAPHELA MCWANINGI: beka kube umbuzo ovulelekile)**

Ijikhi	1
Iklorine	2
Uyawabilisa	3

23. Ngabe zikhona yini izinqalasizinda zezempilo (isibonelo umtholampilo) ebangeni elihambeka ngonyawo usuka lapho kuhlala khona umntwana?

Yebo	1
Cha	2

24. Ngesikhathi usakhulelwe wawuzisebenzisa yini izinqalasizinda zezempilo (isibonelo umtholampilo)?

Yebo	1
Cha	2

25. Uma impendulo yombuzo **24** ithi **YEBO**, uyekangaki emtholampilo?.....

26. Ukhona yini owake waxoxisana nawe ngokuthi kufanele umnike kudla kuni umntwana wakho ngesikhathi ukhulelwe?

Yebo	1
Cha	2
Angisakhumbuli	3

27. Uma impendulo yombuzo 26 ithi YEBO, gcwalisa ithebuli elingezansi **(QAPHELA MCWANINGI: abaphenduli bemibuzo bangakhetha umbuzo owodwa nangaphezulu).**

Udokotela	1
Umhlangikazi	2
<b>Umlekeleli womhlangikazi</b>	3
Umeluleki wezokudla/ Umsebenzi wonakekelo lwezempilo	4
Ilunga lomndeni – yisho ukuthi ngubani _____ _____	5
Omunye umama/umngani/umakhelwane. Kokelezela ukuthi ubani.	6

28. Uma impendulo yombuzo 26 ithi YEBO, wafundiswa ngalezihloko ezilandelayo? **(QAPHELA MCWANINGI: abaphenduli bemibuzo bangakhetha umbuzo owodwa nangaphezulu).**

Ukubaluleka kokuncelisa ibele lodwa	1
Ukubaluleka kokusheshe uqale ukuncelisa ibele	2
Ukubaluleka kokubeka umntwana esifubeni sikamama masinyane emva kokubeletha	3
Ukubaluleka kokuncelisa ibele kumama	4
Ukubaluleka kokuncelisa njalo ukuze kusize ukuqiniseka kokuba khona kobisi olwanele	5
Ukuphatha umntwana ngendlela okuyiyo nokumbeka ebeleni (watshengiswa umsebenzi emtholampilo)	6
Ubuhle bokuthatha imishanguzo ngesikhathi uncelisa ibele	7
Ubungozi bokungancelisi ibele	8
Ukubaluleka kokuphila ngendlela enemphilo (ukudla okunempilo, ukuzivocavoca, ukugwema izidakamizwa nophuzo oludakayo)	9
Ukubaluleka koxhaso (uxhaso kwabomndeni, abangani, nozwana naye)	10

29. Usuwake wawuvakashela umtholampilo selokhu umntwana wakho azalwa?

Yebo	1
Cha	2

30. Uma impendulo yombuzo 29 ithi YEBO, suvakashele kangaki emtholampilo selokhu wazalwa umntwana?

31. Isikhathi esiningi uwusebenzisela umtholampilo **(QAPHELA MCWANINGI: ophendulayo angakhetha nokungaphezu kokukodwa)**

Ukugula lomntwana	1
Ukugula kwakho	2
Ukuhlela umndeni	3
Ukugoma	4
Ukuhlola umntwana ukuthi uyakhula	5

32. Sewake waluthola ulwazi ngokondliwa kwalo mntwana kubantu abasebenza emtholampilo wangakini emva kokuzalwa komntwana wakho? Uma ungakaze dlulela kumbuzo **35**.

Yebo	1
Cha	2

33. Uma impendulo yombuzo 32 ithi YEBO, qedela leli thebula elilandelayo: **(QAPHELA MCWANINGI: ophendulayo angakhetha okungaphezu kokukodwa)**

Udokotela	1
Umhlangikazi – sista	2
Umlekeleli womhlangikazi	3
Umeluleki wezokudla/ Umsebenzi wonakekelo lwezempilo	4
Ilunga lomndeni – yisho ukuthi ngubani	5
_____	
_____	
Omunye umama/umngani/umakhelwane. Kokelezela ukuthi ubani.	6

34. Ngabe uyasithatha yini iseluleko ngokondliwa komntwana osinikezwa abasebenzi base mtholampilo noma esibhedlela? **(QAPHELA MCWANINGI: Uma impendulo yombuzo 31 bekuCHA ungawubuzi lombuzo)**

Yebo	1
Cha	2



35. Uma impendulo yombuzo **34** kube ngu**YEBO**, iyiphi ingxenye yolwazi owayilandela futhi kungani?

ULWAZI	ISIZATHU

36. Izingane zakho ezindadlana (ngaphandle kwalo mntwana) owazincelisa ibhodlela ungangitshela ukuthi kungani wawuzondla ngebhodlela?

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37. Mayelana nomntwana esikhuluma ngaye, uma ngabe uke wamncelisa ibele kodwa wamyekeisa, ngicela uphendula lemibuzo elandelayo:

Wamncelisa isikhathi esingakanani	Izizathu zokumncelisa	Isizathu sokumyekeisa ibele (Uma kwenzekile)

Yebo	1
Cha	2

38. Ngeviki eledlule, umntwana wakho ubumuphani?  
**(QAPHELA MCWANINGI: lo mbuzo uzobuzwa njengombuzo ovulelekile. Uhla olulandelayo luzosetshenziswa nguweni futhi akumele kushiwo njengesibonelo kumama-angakhetha okungaphezu kokukodwa)**

Ubisi lwebele kuphela	<b>1</b>
+ amanzi	<b>2</b>
+ umbhubhudlo	<b>3</b>
+ itiyi	<b>4</b>
+ ijusi	<b>5</b>
+ iphalishi	<b>6</b>
+ inestamu	<b>7</b>
+ isirilekhi	<b>8</b>
+ izithelo/izitshalo	<b>9</b>
+ ukudla kwengane ipurity	<b>10</b>
+ iformula yabantwana	<b>11</b>
+ ubisi lwezinkomo	<b>12</b>
+ inesipuleyi	<b>13</b>
+ ubisi lwekhofi (Cremora)	<b>14</b>
Ubisi lwethini lomntwana kuphela	<b>15</b>

+ amanzi	<b>16</b>
+ umbhubhudlo	<b>17</b>
+ itiyiye	<b>18</b>
+ ijusi	<b>19</b>
+ iphalishi	<b>20</b>
+ inestamu	<b>21</b>
+ isirilekhi	<b>22</b>
+ izithelo/izitshalo	<b>23</b>
+ ukudla kwengane ipurity	<b>24</b>
+ ubisi lwezinkomo	<b>25</b>
+ ubisi lwekhofi	<b>26</b>

39. Uma impendulo yakho yombuzo u38 kuwukuncelisa ubisi lwebele kuphela, kukhona yini okunye ukudla okudliwa okanye iziphuzo eziphuzwa umntwana? (Qaphela mcwaningi: Ukuncelisa ibele kuphela ikona ekubhekwa la).

Yebo	1
Cha	2

40. Waqala eseneminyaka emingaki umntwana ukumnika ukudla noma iziphuzo?

41. Wawumnika ini?

.....

.....

42. Uma wake wancelisa ubisi lwebele, ngabe ukhona owake wawutshengisa ukuthi kunceliswa kanjani?

Yebo	1
Cha	2

43. Uma impendulo kumbuzo **42 iwuYebo**, ubani?

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44. Uma uke wancelisa ibele, ngabe kubuhlungu okanye kwakubuhlungu ngesikhathi uncelisa.

Yebo	1
Cha	2

45. Uma uke wancelisa, ngabe bewumbona okanye umbona umntwana aneliseka emuva kokuncela?

Yebo	1
Cha	2
Angazi	3

46. Uma sewake wancelisa umntwana wakho, ngabe umncelisa njalo, awumkaleli, okusho ukuthi umncelisa ngazonke izikhathi?

Yebo	1
Cha	2

47. Uma umntanakho usuke wamncelisa, kunini lapho wamqalisa khona ukumncelisa?

Emva kokuzalwa nje	1
Emva kwamahora ambalwa ezelwe	2
Emva kosuku ezelwe	3
Emva kwezinsuku ezimbili ezelwe	4
Emva kwezinsuku ezingaphezu kwezimbili ezelwe	5
Angazi	6

48. Uma umntwana enganceliswanga ibele masinyane emva kokuzalwa, wanceliswani futhi ngasiphi isizathu?

Cacisa iziphuzo	Isizathu

49. Uma umntwana wake wancela ibele, ubani owakululeka ukuthi unike umntwana wakho enye into ngaphandle kobisi lwebele futhi kungani? **(Qaphela mcwaningi: buza njengombuzo ovulelekile. Ophendulayo angaphendula ngaphezu kokudwa) Umama angadinga ukuthi umbuzisise uma sekuza ekutheni anikeze izizathu)**

UBANI	
Isinqumo sami	1
Iseluleko sikamama	2
Iseluleko sikamamezala	3
Iseluleko sikagogo	4
Iseluleko sikayise wengane	5
Iseluleko sikasisi/esinye isihlobo	6
Iseluleko sabangani/omakhelwane	7
Iseluleko sabasebenzi basemtholampilo	8
ISIZATHU	
Umntwana ubelambile	1
Umntwana ubekhala kakhulu	2
Ubisi luncane	3
Ubisi lulula/luwikhi	4
Umama uyagula	5
Umntwana uyagula	6
Umntwana bengalifuni ibele	7
Umama bebuyela emsebenzini	8
Bekunezinga emabeleni, isibonelo izingono zibuhlungu	9
Bukhulelwe/buzithwele futhi	10
Okunye – uyacela ucacise	11
.....	
.....	

50. Uma umntwana edla ukudla okwamanzi okungelona ubisi lwebele, ulunikezwa kanjani oluwuketshezi?

Ibhodlela	1
Inkomishi	2
Isipunu	3
Okunye, uyacelwa ucacisa.....	4
.....	

51. Ukhona osekake waxoxa nawe ngokuthi lisetshenziswa kanjani ibhodlela ukondla umntwana?

Yebo	1
Cha	2

52. Uma impendulo ka **51** ithi **YEBO**, ubani owaxoxa nawe? (**QAPHELA MCWANINGI: buza kube umbuzo ovulelekile**)

Osebenza emtholampilo	1
Umama/umamezala	2
Umngani	3
Omunye – uyacelwa ucacisa	4

53. Ukhona yini emtholampilo osekake wakukhombisa ukuthi ulenze kanjani ibhodlela lomntwana wakho?

Yebo	1
Cha	2

54. Ngabe umntanakho uyalingela idamu? (**QAPHELA MCWANINGI: asikho isidingo sokubuza uma ingane incela idamu ngesikhathi sengxoxo**)

Yebo	1
Cha	2

55. Yisiphi isizathu esifika kuqala emqondweni wakho uma ingane ikhala? (**QAPHELA MCWANINGI: Impendulo eyodwa kuphela elindelekile**)

Umntwana umanzi	1
Umntwana ufuna ukuthathwa	2
Umntwana uyagula	3
Umntwana ulambile	4
Umntwana uyagodola	5
Okunye – uyacelwa ucacise	6
.....	

56. Ngabe ungathanda ukulutholaphi ulwazi ngokondliwa komntwana wakho?

Emtholampilo wangakithi	1
Ekhaya	2
Ehholo lesonto langakithi	3
Ehholo lesikole sangakithi	4
Okunye – uyacelwa ucacise	5
.....	

57. Ungathanda ukuluthola kanjani ulwazi ngokondliwa komntwana wakho? **(QAPHELA MCWANINGI: Izimpendulo zingaba ngaphezulu kweyodwa)**

Ukuxoxa ngqo nabasebenzi basemtholampilo	1
Ukuxoxa ngqo nomngani	2
Ukuxoxa ngqo nesihlobo	3
Imihlanganywana nabanye omame	4
Uhlelo lwasemsakazweni	5
Uhlelo lukamabonakude	6
Iphephandaba	7
Iphephabhuku isibonelo, uBona, iDrum	8
Incwajana oya nayo ekhaya	9
Iposta	10
Ivido	11
Okunye – uyacelwa ucacise	12

58. Uma ngabe awuzange utshengiswe ukuncelisa **(Umbuzo42)**, ubungathanda ukuba bekukhona umuntu owakutshengisa okanye owakusiza ngokuncelisa?

Yebo	1
Cha	2

**SIYABONGA UKUTHI USINIKEZE ISIKHATHI SAKHO UPHENDULE LEMI BUZO.**