A descriptive study of demographic and socio-economic factors influencing infant feeding practices in the Amathola district, South Africa

By Danelle Groenewald

A Mini-thesis submitted in partial fulfilment of the requirements
for the degree of Magister Curationis in Advanced Midwifery and
Neonatology in the School of Nursing,
University of the Western Cape.

Supervisor: Prof N. Mbombo

November 2010

A descriptive study of demographic and socio-economic factors influencing infant feeding practices in the Amathola district, South Africa

Danelle Groenewald

KEYWORDS

Socio-economic

Demographic

Exclusive breastfeeding

Exclusive formula feeding

Mixed feeding

Sanitation

Employment

Poverty

Water

Epidemiology

ABSTRACT

In South Africa, high infant morbidity is inextricably linked to poor socio-economic and demographic conditions. Most rural areas have poor access to water, poor sanitation and waste disposal systems, and do not have electricity. The problem that arises is that for most women, the choice to either breastfeed or formula feed their babies is often made without taking into consideration the hygienic and other risks that could arise. These conditions impact on infant feeding practices and may in turn lead to higher morbidity and mortality rates in infants.

The aim of this study was to describe the demographic and socio-economic factors influencing infant feeding practices in the Amathola district, South Africa. A survey was chosen as the design method and a structured questionnaire was used to collect information regarding the socio-economic and demographic factors and related infant feeding choices.

The study population consisted of 100 women with infants up to the age of 14 weeks, who brought their infant for immunization at the selected community health clinic (the largest clinic in the Mdantsane area). Infants up to the age of 14 weeks were used because all the visits up to 14 weeks coincide with the local immunization program, and according to WHO guidelines all infants should be exclusively breastfed until they reach the age of 6 months of age.

The study found that there are many families in the Mdantsane area that suffer from poor conditions and inadequate services such as a lack of electricity, working taps or flush toilets within their dwelling, which in turn has an impact on infant feeding practices. It was found that even in poor demographic and socio-economic conditions, formula feeding is still the chosen feeding practice for the majority of mothers.

DECLARATION

I declare that *A descriptive study of demographic and socio-economic factors influencing infant feeding practices in the Amathola district, South Africa* is my own work, that it has not been submitted for any degree or examination in any other university, and that all the sources I have used or quoted have been indicated and acknowledged by complete references.

Full name: ……. Date:…….

Signed: ……..

ACKNOWLEDGEMENTS

I would like to thank:

Professor Normafrench Mbombo, for your support, guidance and motivation throughout this whole experience.

A special thank you to the personnel of the NU 2 clinic for their help and friendliness throughout the data collection period, and to the Amathola District Municipality for their consent to do the study.

I would also like to take the opportunity to thank the following people who also made a contribution:

Lynette, Graham, Charl and Rosalie.
Rudo Ngara (PET)
Anton, Doreen and Karl
Goran and Daniel
The UWC Midwifery team.

DEFINITIONS

Socio-economic

Refers to the social and economic influences such as income and unemployment (financial situation) that impact on individuals in a population (Cambridge Dictionaries Online, 2010).

Demographic

Demographical data in a survey is concerned with factors such as access to services, morbidity and population numbers (Forest Genetics Council, 2009).

Exclusive breastfeeding

Exclusive breastfeeding refers to feeding only breast milk, not any other solids or liquids (United Nations Children's Fund & World Health Organization (UNICEF & WHO, 2009).

Exclusive formula feeding

Exclusive formula feeding refers to feeding only formula milk, not any other solids or liquids (UNICEF & WHO, 2009).

Mixed feeding

Mixed feeding refers to feeding more than one type of feed or a variety of feeds such as breast milk and formula milk or / and food combined (UNICEF & WHO, 2009).

Environment

Refers to a person's non-genetic conditions and other conditions that affect his/her health and conduct (Forest Genetics Council, 2009).

Sanitation

Hygienic and clean conditions including services such as waste and garbage removal, which will help prevent disease (Wikipedia, 2010).

Poverty prevalence

"Proportion of people/households living in poverty". Depending on the poverty line and the methodology used there are various estimates of the extent of poverty (Bradshaw & Steyn, 2002)

Water

Water is a compound of hydrogen and oxygen; it is a liquid which is clear, odourless and tasteless (Environment Canada, 2010).

Epidemiology

Is concerned with the incidence, spread and control of disease in a population (Virtual Trials, 2010).

CONTENTS

LIST OF APPENDICES **Page**

LIST OF FIGURES **Page**

CHAPTER 1
INTRODUCTION TO THE STUDY

1. Introduction

The Eastern Cape has the third largest population (6 743 800) in South Africa after Kwazulu-Natal and Gauteng, and, according to Statistics South Africa (SSA), covers the second largest land area (SSA, 2010). The Amathola District in the Eastern Cape contains the Buffalo City Local Municipality, which is the most populated of all municipalities in the country (Mcann, 2005). According to the Eastern Cape Development Corporation (ECDC), Amathola had an estimated population of 1, 657,373 in 1999 (ECDC, n.d.). The population is made up of 91% African, 3% coloured and 5% white people. Socio-economic and demographic factors such as sanitation, water supply and housing are some of the major challenges faced by Eastern Cape residents. It has been reported that 24,29% of the population uses either the bucket toilet or has no toilet at all (SSA, 2005). Only 45% of the population has access to taps in their homes or on site (SSA, 2007). Nearly half of the population are unemployed and 16% of females are illiterate (SSA, 2005).

Morbidity rates are usually associated with health and economic growth. International, national and provincial policies recommend formula feeding as the best choice for women who are Human Immunodeficiency Virus (HIV) positive and who have access to clean water. "When replacement feeding is acceptable, feasible, affordable, sustainable and safe, avoidance of all breastfeeding by HIV infected mothers is recommended otherwise exclusive breastfeeding is recommended during the first months of life" (United Nations Children's Fund (UNICEF) & World Health Organization (WHO), 2009). Poor socio-economic and demographic conditions have been related to both unhealthy and unhygienic feeds, which in most cases result in higher infant morbidity rates and in turn mortality rates due to malnutrition and infectious diseases in all infants exposed to these conditions (National Department of Health (NDoH) & Health Systems Trust (HST), 1996).

1.2 Background Literature

Any society's health and growth are greatly affected by socio-economic factors. There is evidence of a link between poor health and poverty (Van Rensburg, 2004). Although poverty exists in all populations, it was exacerbated in the Eastern Cape Province owing to the *apartheid* system which denied millions of mostly black South Africans the benefits enjoyed by other ethnic groups. Such living conditions without adequate housing, access to water and electricity , education and sanitation led to poor health, and the effects are still evident today (Van Rensburg, 2004).

1.3 Biographical influences

The Greek word *bios* mean "life" and is focussed on a person's profile containing personal information such as age and marital status (The Free Dictionary, 2009).

1.3.1 Age and fertility

Annual population growth rate is defined by the Haupt & Kane (2000:43) as "The rate at which the population is increasing or decreasing in a given year expressed as a percentage of the base population size".

Death rate as defined by the HST is the "number of deaths in a year per 1 000 population" (HST, n.d.) (a). South Africa is now experiencing a negative population growth rate (-0.46%) due to the increase in the death rate (22 deaths/1000) (UNICEF, 2010).

The total fertility rate decreased slightly from 2.20 in 2006 to 2.16 in 2007. The majority of babies are born currently to women between the ages of 15 – 19 years. More than a third (35%) of the women in South Africa falls pregnant before the age of 20 years. This is as a result of poor availability of health education such as family planning, economic factors and cultural beliefs (Dangal, 2005). Infant feeding choice, mortality and

morbidity may have a greater impact on low age group mothers because they do not have the necessary support systems and education (Van Rensburg, 2004).

1.3.2 Marital status

In South Africa, around 8% of first marriages occur before the age of 18 years (Van Rensburg, 2004). This can be related to socio-cultural beliefs together with low education and income. These factors lead to various complications such as early infant deaths (Department of Health (DOH), Medical Research Council (MRC) and Measure Demographic and Health Surveys (Measure DHS), 2002). The nature of a mother's relationship with her partner may also influence feeding choices (Sika-Bright, 2010).

1.3.3 Language

According to the population census conducted in 2007, the current estimated population of South Africa is 47,85 million people, (SSA, 2007). The census data also showed that the majority of the population speaks Zulu (23,8%) followed by Xhosa (17,6%), Afrikaans (13,3%) and English (8,2%) (SSA, 2007). It is therefore a possibility that language barriers may impede communication between health care providers and women. This may cause confusion and incorrect mixing of formula feeds for infants. Incorrect feeding in turn may lead to infectious diseases, such as diarrhoea and cholera, increasing the risk of infant morbidity or/and mortality (UNICEF & WHO, 2009).

1.3.4 Religion and culture

The majority of the Eastern Cape population is Christian. The majority of this population is reported to belong to mainly conventional Christian churches such as Anglican, Methodist, Roman Catholic and Presbyterian, while about 10,3% of the population has no religion. It is well known that religion and culture play important roles as far as infant feeding choices are concerned. In previous studies female participants reported that they are influenced by religion and culture, saying that in African cultures exclusive breastfeeding is the only feeding method accepted (Leshabari, Blystad & Moland, 2007; Statistics South Africa (SSA), 2004).

1.4 Demographic influences

Demographic data in a survey is concerned with factors such as access to services, morbidity and population numbers (Wikipedia, 2010).

1.4.1 Access to health services

In rural communities, access to basic health services is limited and according to the South African Health Review of 2003/4, basic services are provided at most community health facilities (HST, 2004). These services include immunisation (67% of clinics provide this service); family planning (88%); antenatal care (55%); treatment of sexually transmitted infections (STI) (94%); tuberculosis treatment (TB) (89%) and Prevention of Mother-to-Child Transmission (PMTCT) (20%) (NDOH, 2003).

Although basic health services are available in most areas, people in many rural areas find it difficult to access these services owing to problems with transport. The nearest health clinics for most households are more than 60 minutes' walking distance away (SSA, 2005). The survey has shown that 75% of these households travel on foot and 34% by minibus taxi. A startling 19,5% of maternal deaths in rural areas were due to avoidable factors such as transport problems or a lack of health care facilities in the area (NDOH, 2003). It is important especially for formula feeding mothers who receive formula milk from the government, to have easy access to clinics in order to receive milk.

1.4.2 Access to fresh water

The availability of fresh water in rural areas is limited due to drought, water scarcity and poverty. According to the General Household Survey, 88,9 % of South African households and 71,6 % of Eastern Cape households have access to water in their homes or on sites nearby (SSA, 2008). Diseases such as malaria, cholera, diarrhoea and intestinal worms are only a few of the water-related diseases caused by poor water quality, and if such water is used to make artificial feeds it may negatively affect infant health (National Population Unit, 2000; UNICEF & WHO, 2009). According to

Bradshaw, Bourne & Nannan (2003) the third and fifth leading causes of death in female infants under the age of one year during 2001 were diarrhoeal diseases (11%) and lower respiratory infections (6,3%). These causal factors were linked to poor socio-economic conditions such as inadequate safe water supply.

1.4.3 Access to safe sanitation

In South Africa 59,41% of households use flush toilets, 30,98% use pit latrines, 2,07% use the bucket system and 6,19% have no sanitation facility (SSA, 2008). In the Eastern Cape Province, 19,5% of all households either use the bucket toilet or have no toilets (SSA, 2008). About 30% of child deaths that occur under the age of five years are inextricably linked to poor sanitation conditions (Bradshaw, Bourne, & Nannan, 2003). It is therefore evident that poverty stricken rural areas are mostly affected by the issues of inadequate sanitation which may affect infant feeding preparations.

1.4.4 Access to electricity

Electricity is still unavailable to many South African rural societies. People living in such disadvantaged households make use of other sources of energy such as coal, paraffin, cow dung, wood or gas (SSA, 2008). In 2007, only 68,8% of Eastern Cape households had access to electricity for cooking purposes, while 44,2% relied on paraffin or wood for cooking, and a further 1% used animal dung (SSA, 2008). This situation in turn leads to other negative effects such as air pollution and respiratory infections. In addition, unsafe feeding practices may arise from incorrect cooking methods, leading to unhygienic and potentially microbial contaminated feeds (UNICEF & WHO, 2009).

1.5 Socio-economic influences

Socio-economic influences refer to social life conditions and economic activity (Wikipedia, 2010).

1.5.1 Unemployment

Unemployment in South Africa has been increasing steadily in recent years, and clearly leads to higher levels of poverty, especially in rural areas. According to SSA (2001) the distribution of unemployment in South Africa is highest among rural black African women (58%) as compared to Coloured women (34%), Indian / Asian women (4%) and white women (13%). Low or inadequate income may lead to poor infant nutrition and feeding practices, and in turn, high morbidity rates due to the unavailability of hygienic equipment and milk (Papathakis & Rollins, 2004).

1.5.2 Education

Education is an integral part of any population's development. During the *apartheid* system, South Africa's disadvantaged, mainly black population was denied adequate education which resulted in many of the older women still being illiterate. During the 2008 Census, 10,3 % of the female population and 7% of the male South African population above 20 years of age had not had formal education (SSA, 2008). It has been found that educational level has a strong and positive correlation to initiate and sustain breastfeeding (Sika-Bright, 2010). Also, inadequate access to basic services, which is a determinant of good health, has been related to lower education levels of households (Ahsan & Quamruzzaman, n.d.). This means that in order for women to feed and care for their infants and children successfully, they need to be able to read, understand instructions given to them and have adequate knowledge of how to prepare feeds.

1.5.3 Income

In South Africa, many households do not even have one member who is formally employed (SSA, 2005). Most households are dependent on government remittances, grants and pension funds as their main source of income. According to the 2004 General household survey (SSA, 2005), in a population (men and women) of 6837 who received salaries and/or wages, only 1779 women received a salary and/or wages. In another population group of 186 people with no income, 53 were women and 133 were men. Women with infants in these households who do not receive an income and who are not supported by family members are suffering greatly. This shows that women in general

need to have at least some form of income in order to provide safe food and to buy utensils if they choose to use replacement feeding.

1.5.4 Type of household

Informal dwellings are still prevalent in South Africa and approximately 15,4% of South African households live in informal households (SSA, 2008). According to the 2007 General Household Survey, informal dwellings in the Eastern Cape Province has been reduced to 8,3% (excluding traditional housing) (SSA, 2008). Informal dwellings in non-urban settings must by definition suffer greatly from poor socio-economical circumstances. Infants and children in this situation may suffer poor nutrition and hygiene, which is reflected in the morbidity rates (UNICEF & WHO, 2009).

1.5.5 Members in household

In 2004, the average size of households in South Africa was between three and eight, while in rural areas, the size was between four and eight (Hutchson *et al.*, 2004). Poor hygienic conditions can be related to overcrowding. Thus there is a strong possibility of poorer socio-economic conditions in household with more people and fewer rooms (UNICEF & WHO, 2009).

1.6 Infant feeding practices and morbidity

Replacement feeding or formula feeding is safe but it is not always practical due to poverty and poor hygiene (Ross & Labbok, 2004). Clean water, adequate sanitation, a source of energy as well as clean utensils should be readily available. Unsafe practices may lead to increased infant morbidity due to diseases such as diarrhoea. Exclusive breastfeeding on the other hand has proven to reduce infant mortality by six fold in the first two months of life (UNICEF & WHO, 2009). This type of feeding is most widely supported, except in special medical cases where formula feeding would be a better option.

1.7 Research statement

Women's feeding options for their newborns may depend on their socio-economic, demographic and health status. Socio-economic and/or demographic factors may have a negative impact on infant feeding practices. This survey is a useful method to describe the demographic, socio-economic factors that may affect choice of infant feeding in a selected population.

1.8 Research Aim

The aim of this survey is to describe demographic and socio-economic factors influencing infant feeding practices of mothers with infants up to 14 weeks of age in the Amathola district.

1.9 Research Objectives

The objectives of the study are:

- To describe current infant feeding choices of mothers with infants up to the age of 14 weeks.

- To describe the socio-economic factors that may influence infant feeding practices among mothers with infants up to the age of 14 weeks, and

- To describe the demographic factors that may influence infant feeding practices among mothers with infants up to the age of 14 weeks

1.10 Chapter Outline

Chapter One provides the introduction, background and aims of the study. Chapter Two gives a detailed literature review of the study area. The third chapter explains the methodology, instruments used and process of the survey. Chapter Four describes the results that were found and display these results in graphs. Chapter Five discusses the main findings and makes a number of recommendations.

1.11 Ethical Aspects of the Research

Formal consent was obtained from the Senate Higher Degrees Committee of the University of the Western Cape. Consent to carry out the study was also obtained from the Department of Health Eastern Cape Province, The East London Complex Hospital Institutions as well as the Amathola District Municipality and Mdantsane Clinic. Further ethical considerations are discussed in Chapter 3.

CHAPTER 2
LITERATURE REVIEW

2. Amathola District

The Amathola District is situated in the Eastern Cape Province and is bordered by districts such as Cacadu, Chris Hani and O.R. Thambo. The district consists of eight municipalities which extend over 23, 577 km². The Buffalo City Municipality has almost half of the district's population and is said to be the second most populated municipality in the province. Other municipalities include Mnquma, Mgqushwa, Great Kei, Amahlathi, Nkonkobe and Nxuba. Mdantsane is part of the Amathola District Municipality and falls under the Buffalo City Municipality. Mdantsane is also said to be the second largest township in South Africa. It has a population of 175 783 people and covers an area of 92,03km² (Business Trust, 2007). The Amathola district is characterized as a rural area with a low urbanisation rate. The majority of the Amathola district population lives in poverty and the average household income for the district fall below the poverty line. The principal first language in the district is isiXhosa which is spoken by almost 100% of the residents (Mcann, 2005).

2.1 Biographical influences

Biographical data or influences refer to events or facts relating to a person's life (Answers, 2010).

2.1.1 Age and fertility

According to the Human Sciences Research Council, South Africa is currently experiencing a decline in the fertility rate which may be attributed to the current social and economic trends. These factors include urbanisation, migration, education for women and family planning (Human Sciences Research Council, 2007). The annual population growth rate also dropped between 2005 and 2007 from 1,1% to 0,8% (Health Systems

Trust, 2007). The total fertility rate may be defined as "...the average number of children that a woman gives birth to in her lifetime, assuming that the prevailing rates remain unchanged" (DOH, MRC & Measure DHS, 2002). During 1998, the average number of children a woman had was estimated at 2,9 of which urban women had 2,3 and rural women 3,9. From 1998 to 2006 the total fertility rate dropped to 2,7 children per woman (Human Sciences Research Council, 2007).

Adolescent fertility is extremely high in South Africa (Palamuleni, Kalule-Sabiti & Makiwane, 2007). Teenage pregnancy is defined as the "...percentage of women aged between 15-19 who are mothers or who have ever been pregnant" (DOH, MRC & Measure DHS, 2002:26-27). According to the Health System Trust (2008), in 2006 the overall teenage pregnancy rate for South Africa was 39 %. In 2003 the Eastern Cape Province alone had a rate of 13,6%. Teenage pregnancy is not just a risk for the mother herself but also for the infant, involving many emotional issues and health risks (Dangal, 2005).

Fertility rates are higher in women who grew up in a rural area up to at least the age of 12 years (Palamuleni *et al.*, 2007). It was also found that the fertility rate is generally lower for women with a higher level of education and those who have aspirations for higher standards of living. Higher fertility rates and adolescent pregnancies correlate with poor availability of health education such as family planning, economic factors, level of education and cultural beliefs. Poor infant feeding choices, mortality and morbidity may impact on low-age group mothers because they do not have the necessary support systems and education (Dangal, 2005; Van Rensburg, 2004).

A mother must make an informed decision on whether it is safe to breastfeed or formula feed her baby and in most cases this will depend on the availability of resources. Furthermore, mothers must use professional family planning methods in order to allow for adequate periods of time between their pregnancies according to their financial ability to support more than one child. Mothers that do not have adequate education due to

poverty or other reasons may not be able to make the safest and healthiest choices for their infants.

2.1.2 Marital status

In South Africa, around 8% of all first marriages occur before the age of 18 years (Van Rensburg, 2004). This can be as a result of socio-cultural beliefs as well as low education and income levels of individuals within different ethnic groups. This leads to various complications including early infant deaths (NDoH, MRC & Macro International, 2003). In South Africa, it is becoming more acceptable for unmarried women to have children, and the rate of single women having children is increasing (Palamuleni *et al.*, 2007). Studies have proven that mothers who are married have a more positive attitude towards breastfeeding than single mothers (Arora, McJunkin, Wehrer, & Kuhn, 2000; Sika-Bright, 2010). Being a single parent may influence a mother's choice of infant feeding because she may not have a partner/husband as a support system. The nature of the young mother's relationship with her partner may also influence feeding choices. Mothers who are not financially supported by a partner or husband may have problems in sustaining adequate, healthy and safe feeds. This may in turn lead to an increased risk of mortality and morbidity due to diseases such as diarrhoea which can be reduced by breastfeeding exclusively (Ashman, 2005).

2.1.3 Language

The current estimated population of South Africa is 48 687 323 million people and that for the Eastern Cape Province is 6 907 000 (SSA, 2008). South Africa recognises 11 official languages and during the 2000 population census in the Eastern Cape Province, the majority of the people stated that their home language was Zulu (82%) followed by Xhosa (64%), Afrikaans (35%) and English (2%) (National Population Unit, 2001). Language barriers may impede communication between health care providers and women and women may not be literate in the particular language used to give instructions on how to prepare formula feeds. This in turn may cause problems such as the incorrect preparation of formula milk for infants. Incorrect mixing and administration of feeds

may lead to inadequate feeds which in turn lead to higher susceptibility to infectious diseases (UNICEF & WHO, 2009).

2.1.4 Religion and culture

The majority of South African people belong to the Christian faith (79,8%) while 15,1% has no religion, 1,5% practice Islam and 0,3% believe in African traditional religions (SSA, 2001). It is well known that religion and culture play important roles as far as breastfeeding is concerned and issues such as stigmatisation and cultural practices are associated with choice of infant feeding method (Doherty, 2006). In some cultures, breastfeeding is the only accepted norm. Some mothers who decide to formula feed do this in the absence of family members and only breastfeed in their presence to avoid criticism associated with cultural practices. The mixing of two different feeding methods is called mixed feeding, which has been proven to lead to a higher risk of contracting infectious diseases (Leshabari, Blystad, & Moland, 2007 & Doherty, 2006).

2.2 Demographic influences

Demographic data in a survey is concerned with factors such as access to services, morbidity and population numbers (Forest Genetics Council, 2010).

2.2.1 Access to health services

In rural communities such as the Amathola District only basic health services are available. According to the South African Health Review of 2003/04, basic health services are provided at most community health facilities (HST, 2004). Services provided include immunisation at 67% of the clinics; family planning at 88%; antenatal care at 55%; treatment for sexually transmitted infections (STI's) at 94%; tuberculosis (TB) treatment at 89% and prevention of mother-to-child transmission (PMTCT) at 20% of the clinics. Furthermore, according to the Socio-Economic Profile for the Amathola District Municipality (2007), access to other health services is somewhat better than access to services such as basic water, sanitation and electricity. Access to emergency

health services such as ambulances is shockingly poor throughout the whole district, with only 45% of the Buffalo City residents having access to these emergency healthcare services (Amathola District Municipality, 2007).

In the Mdantsane area there is only one hospital and seven clinics (Amathola District Municipality, 2007). According to the needs of the population it is estimated by the Amathola District Municipality that three more clinics, a family planning clinic and a decentralised day hospital are required. Although basic health services are available in most areas of the Amathola District, the issue of transportation especially due to poor road infrastructure and limited access to public transport makes it difficult to access the health services in these rural areas (Amathola District Municipality, 2007). The nearest health clinics for most households are more than 60 minutes away if walking, and the transport networks in the Mdantsane area are poorly managed (Business Trust, 2007). A startling 19,5% of maternal deaths are due to avoidable factors such as transport problems or lack of health care facilities in the area (DOH, MRC & Measure DHS, 2002). This is reflected in the statistics for access to an ambulance service for the whole of the Amathola District. Delayed access to health services for infants may have a severe impact on the outcome of disease. If infants are not treated early enough for diseases such as diarrhoea and respiratory infection, the chances that the disease will lead to death are high (Bradshaw & Dorrington, 2006).

2.2.2 Access to fresh water

The availability of fresh water in the Amathola District is limited in many areas due to recurrent droughts, even though many attempts have been made to extend access to water for the Amathola District households. During 2008, only 71,6 % of the Eastern Cape population had access to taps in their homes or on site (SSA, 2008). The provincial household survey conducted in 2006, showed that 24% of the households in the Amathola District use water from natural sources and/or dams. The survey also showed that 42,2 % of the Amathola District population had access to water on site, 3,4% used

borehole/tank water, 30,4% used a community stand while 0,6% used water vendors or other sources (Amathola District Municipality, 2007).

Diseases such as malaria, cholera, diarrhoea and intestinal worms are some of the water-related diseases that are caused by poor quality water (National Population Unit, 2000). According to Bradshaw, Bourne & Nannan (2003), the third and fifth leading causes of death in female infants under the age of one year during the year 2000 were diarrhoeal disease (11%) and lower respiratory infection (6,3 %). These causal factors were linked to poor socio-economic conditions such as an inadequate supply of safe water. The statistics for access to safe water clearly show the challenges the district still faces. Safe and adequate water is needed for preparing formula milk and cleaning utensils that are used to prepare and feed the infant. If poor quality and contaminated water is used to prepare feeds, it may lead to higher rates of morbidity and mortality due to water-related infectious diseases (UNICEF & WHO, 2009).

2.2.3 Access to safe sanitation

In South Africa, 7,7 % of households have neither toilets nor even the bucket system. Research has shown that there have been some improvements recently in terms of household sanitation for the Eastern Cape particularly in the Amathola District (SSA, 2008). Access to sanitation services has been extended by almost 50%, but statistics for other areas are still sub-optimal, leaving some households with poor sanitation. In the Eastern Cape Province, 39,5% of the households use flush toilets (with or without on-site sewerage tanks) and 19,5 % of households have no toilet or use the bucket system (SSA, 2008).

In the Amathola District during 2007, 29,4% of the people had access to the proper flush toilet connected to a sewerage system. Furthermore, 41,1 % still used the pit latrine; 4,1% the bucket latrine and 22,3% had no sanitation facility (Amathola District Municipality, 2007).

About 30% of child deaths under the age of five years are inextricably linked to poor sanitation conditions (Bradshaw & Bourne & Nannan, 2003). It is evident that poor rural areas, for example the Amathola District, are most affected by poor sanitation conditions, which may lead to poor hygiene in formula feeding preparation and the cleaning of feeding utensils. Bacterial related infectious diseases may thus be higher in these areas where sanitation is inadequate.

2.2.4 Access to electricity

South African rural societies suffer the most from the effects of the unavailability of electricity. People living in these disadvantaged households make use of other sources of energy such as coal, paraffin, candles, cow dung, wood or gas. In 2007, 68,8% of the households in the Eastern Cape Province had access to electricity and 44,2% still used paraffin and/or wood for cooking purposes (SSA, 2008). According to the Socio-Economic Profile for the Amathola District compiled during the period 2001 – 2006, only a total of 20% of the district households was linked to the national electricity grid. About 58% of the Mdantsane area population also had electricity (Business Trust, 2007).

Using non-electrical sources of energy leads to other negative effects such as air pollution which in turn leads to respiratory infections. In addition, unsafe feeding practices may arise from inappropriate cooking methods, leading to unhygienic and potentially bacterial contaminated feeds (UNICEF & WHO, 2009).

2.3 Socio-economic influences

Socio-economic influences refer to social and economic influences such as income and unemployment that impact on individuals in a population (Wikipedia, 2010).

2.3.1 Unemployment

Unemployment in South Africa is increasing, causing increased poverty especially in the rural areas. Looking at the distribution of unemployment in South Africa, it is evident that rural African women are most affected, with an unemployment rate of 58%

compared to women of other ethnic groups or races (SSA, 2001). According to SSA (2001) the unemployment rate for Coloured women is 34% and for White women 4% respectively. During the 2007 General Household Survey it was found that the unemployment rate was 32% for the whole of the Eastern Cape Province. The unemployment rate decreased in the Eastern Cape Province between 1996 and 2007 from 48,4% in 1996 to 32% in 2007 (SSA, 2008).

According to the Amathola Municipality (2007), the unemployment rate for this district was 52,7%, with the lowest rate in the Buffalo City (44,8%) and the highest rates in Ngqushwa (76,5%) and Nkonkobe (65,9%). The Mdantsane area had about 25% of Buffalo City's total population and had the least employment opportunities. These statistics clearly reflect limited economic activities and the need to create jobs in the area (Business Trust, 2007).

A stable and reliable income through employment is needed for women who decide to formula feed. For some women formula feed may be provided by the government for the first six months if medically indicated. However, other equipment such as utensils for preparing and feeding the infant are not provided, and the lack of such equipment may lead to unhygienic and unsafe methods of infant milk preparation. Thus, a low income may lead to poor infant nutrition and feeding practices, and in turn, high morbidity rates.

2.3.2 Education

Education is an integral part of any population's development. During the *apartheid* era, some African races were denied adequate education, and this greatly disadvantaged them. This inequality increased the number of people who are illiterate, especially women. (Van Rensburg, 2004). During the 2000 Census, 20% of the female population and 8% of the African female population above 20 years of age had had not gone through formal education (SSA, 2004). According to the 2004 General Household Survey (SSA, 2005) the rate of illiteracy in the overall South African female population was 7%.

For the Amathola District, it has been found that 29% of the formally employed population are either unskilled or has elementary skills, while only 4% of the population is skilled. The Eastern Cape's literacy rate in 2005 was 65,8% and that for the Amathola District was 69% (Amathola District Municipality, 2007). Studies have shown that 19% of all people in the Mdantsane area have had no formal education and that 70% of the people only have secondary education. The poor quality of education in the Mdantsane area contributes negatively to the development and growth of this area (Business Trust, 2007).

Inadequate access to basic services, which is a determinant of good health, has been related to lower levels of education in most households. This means that in order for women to feed and care for their infants and children successfully, they need to be able to read, understand instructions given to them and have adequate knowledge on how to prepare feeds.

2.3.3 Income

In South Africa many households do not have at least one member who is employed. Some households are dependant on remittances, grants and pensions as their main source of income (SSA, 2005). According to the 2007 Socio-economic Profile for the Amathola District, the "...number of people in poverty is an indicator of household members who reside in households whose total income falls below a particular level" (Amathola District Municipality, 2007: 49). Poverty lines, one of the means to measure poverty levels may be defined as " ...a line that values in monetary terms the goods and services required to meet a set of absolute minimum living standards – unvarying over time – across the various basic needs" (Oosthuizen, 2007: 2). During the year 2005, it was found that poverty levels in the Amathola District have actually increased since 1996. Of the Mdantsane residents, only 23% were formally employed and of these, 57% of the households earned an income of less than R10, 000. Household grant dependence in the Amathola District is higher (66,1%) when compared to the Eastern Cape as a whole at 63,6% (Amathola District Municipality, 2007).

According to the 2004 General household survey (SSA, 2005), in a population of 6837 men and women who received salaries and/or wages, only 1779 women received a salary and/or wages. In another population group of 186 men and women with no income, 53 were women (SSA, 2005). Women and their family members in households who do not receive an income and are not supported by other family members may be greatly disadvantaged (Ashman, 2004). Women need income to provide safe food and to buy utensils and all the requirements for feeding and caring for their babies.

2.3.4 Type of household

A type of household may be defined and expressed as the "...percentage of households that are categorised as formal, informal, traditional or other" (HST, n.d.) (c). During the 2004 General household survey (SSA, 2005), it was found that 11,4% of all South African households lived in informal dwellings. It was also found that in the Eastern Cape's Amathola District, the figure for formal, informal and traditional dwellings were 27,7%, 40,9% and 23,5% respectively. During 2007, the level of informal housing for South Africa was found to have increased to 15,4% (SSA, 2008).

Informal dwellings in non-urban settings must by definition suffer greatly from poor socio-economic circumstances such as poor sanitation, unsafe water and no electricity. Infants and children in this situation may suffer poor nutrition and hygiene, which is reflected in the morbidity rates.

2.3.5 Members in household

The Population Census of 1996 defines average household size as the "...average number of people living in each household; where household is defined as a person, or a group of persons, who occupy a common dwelling (or part of it) for at least four days a week and who provide themselves jointly with food and other essentials for living" (SSA, 1998).

In 2004, the average size of households in South Africa was between 3 and 8 members and in the rural areas between 4 and 8 (Hutchinson, Ties Boerma & Khan, 2004). According to the Health Systems Trust (n.d.) (c) in 2007, the number of members per household in South Africa is estimated at 3,9 and for the Eastern Cape 4,1. Since unhygienic conditions can be related to overcrowding, the more people there are in a household, the poorer the socio-economic conditions (UNICEF & WHO, 2009).

2.4 Infant feeding practices and morbidity

Globally, the issues of under-nutrition and communicable diseases due to incorrect feeding practices are now being seriously addressed. Adequate nutrition is critical for optimal infant and child development. Incorrect feeding practices such as incorrect complementary feeding practices and sub-optimal or no breastfeeding is life-threatening to the infant (DoH, 2007). Incorrect feeding practices are currently one of the causes of childhood mortality (DoH, 2007).

According to the WHO *et al.* (2003), a Human Immunodeficiency Virus (HIV) positive mother should choose an infant feeding method based on her individual circumstances and local situation, and also taking into consideration her ability to access health services. Currently the South African government promotes the use of exclusive formula feeding or exclusive breastfeeding in infants whose mothers are HIV positive (WHO, 2003). However, infant morbidity risks and infectious diseases other than HIV should be assessed for every woman before encouraging her to use exclusive formula feeding. The reason formula feeding is not always practical is due to local conditions such as poverty and poor hygiene (Ross and Labbok, 2004). When a mother prepares feeds, she requires clean water, adequate sanitation, and a source of electricity as well as clean utensils, which in poor rural societies are not easily available. Mdantsane has a higher HIV/Acquired Immune Deficiency Syndrome (AIDS) rate than the other poverty-stricken areas (Business Trust, 2007), but unsafe practices in preparing formula feeds may lead to increased infant morbidity due to diseases such as diarrhoea and pneumonia.

2.4.1 Breastfeeding

Exclusive breastfeeding rates for South Africa remain low. The exclusive breastfeeding rate is defined by Department of Health, Medical Research Council & Measure Demographic and Health Surveys (2002) as "...the percentage of living children receiving only breast milk from birth to various ages". Exclusive breastfeeding rate for 0 – 3 months is 11,9%, while that for 4-6 months is only 1,5% according to the DOH, MRC & Measure DHS (2002). It is recommended that exclusive breastfeeding is practised until the infant is six months of age after which other nutritious and safe complementary foods may be introduced and breastfeeding may be continued (WHO, 2003). When comparing exclusive breastfeeding with mixed feeding, mixed feeding has shown an increased risk of gastrointestinal and respiratory infections. Evidence also exists which connects child deaths under 5 years with inadequate breastfeeding (Bradshaw, Bourne & Nannan, 2003). It was found that adequate breastfeeding effectively prevents death from diseases such as pneumonia, neonatal sepsis and diarrhoea (UNICEF & WHO, 2009). Adequate breastfeeding has a 13% prevention rate in the under-five mortality rate in countries such as South Africa. It has even been proven that early cessation of breastfeeding or/and mixed feeding in HIV positive mothers has led to increased rates of infant morbidity and mortality rates in possibly HIV infected infants (DoH, 2007).

2.4.2 Replacement feeding

Giving a child a suitable breast-milk substitute when the child is not breastfed at all is referred to as formula feeding. Mixed feeding on the other hand refers to giving the child breast milk feeds and artificial feeds which may include any other food (UNICEF & WHO, 2009).

According to WHO standards, exclusive replacement feeding should only be encouraged for HIV infected women whose formula feeding practices will be acceptable, feasible, affordable, sustainable and safe (AFASS). These days, both HIV positive as well as HIV negative women decide to use formula feeds. In 2002, it was found that a total of 46 % of infants, regardless of the implementation of the Baby-Friendly Hospital initiative, was fed other fluids or feeds within two days of birth. Exclusive breastfeeding was maintained in only 10% of infants for six weeks and 6% for 16 weeks (DOH, 2007).

A study conducted in the Western Cape area found that HIV infected mothers who formula feed, most often provided their infants with bacterial contaminated feeds or diluted feeds. Thus they do not comply with the WHO AFASS standards and the risk of infant morbidity due to unsafe practices is increased (DOH, 2007). Replacement feeding may thus be safe to protect the infant from HIV transmission, but it is not always practical due to poverty, poor hygiene and uneducated mothers which in turn may lead to mortality or/and morbidity of infants due to other infections (Ross & Labbok, 2004; UNICEF & WHO, 2009). Clean water, adequate sanitation, a source of heat (electricity) as well as clean utensils should be readily available.

2.4.3 Infant morbidity and mortality

The infant mortality rate is defined as "...the number of infants dying before reaching the age of one year per 1,000 live births". "Morbidity" is the term used to refer to illness and "mortality" refers to death" (Abrahams, 2006).

Developing countries such as South Africa struggle with the highest rates of child mortality under the age of five years. According to the UNICEF & WHO (2009), South Africa is rated in the bottom third for levels of child mortality in the world. Most of these deaths are due to preventable communicable diseases such as diarrhoea and pneumonia. It is said that the largest number of infant deaths in South Africa is related to their environmental exposure and socio-economic status (Abrahams, 2006). In 2005 it was estimated that 28,6% of childhood deaths are due to poverty-related diseases such as diarrhoea, lower respiratory infections and protein-energy malnutrition (Norman, Bradshaw, Schneider, Pieterse & Groenewald, 2005). Infants and children living in poor socio-economic conditions and poverty are more likely to suffer from these infectious diseases due to unhygienic circumstances (Abrahams, 2006; UNICEF & WHO, 2009).

Infant mortality rate is defined by HST, as "The number of children less than one year old who die in a year, per 1 000 live births during that year" (HST, n.d.) (d).

According to the South African Demographic and Health Survey, the Infant mortality rate for South Africa in 2003 was 42,5 and for the Eastern Cape 68,3. In 2009, for South Africa this number increased to 43,4 and for the Eastern Cape decreased to 57,7 (HST, n.d.)(d).

The population of the Amathola District lives in poor socio-economic conditions and the rates of infectious diseases are high. Factors that contribute to infectious diseases are unsafe water and sanitation, environmental and waste management issues, poorly ventilated and overcrowded informal dwellings and limited access to health facilities (Amathola District Municipality, 2007).

2.4.4 Diarrhoea

Diarrhoeal disease or diarrhoea is the passing of frequent, liquid-like, loose and watery stools. Excessive amounts of electrolytes and water may be lost through diarrhoea and it may be a life-threatening condition in infants (Medicine Net, 2010).

Urgent and correct management of this disease is critical in children, as it is one of the leading causes of death in infants and children (Woods, 2008). During a survey of child health care in South Africa (2004), 12 South African hospitals were assessed for their under-five mortality rate. It was found that Acute Gastroenteritis (12%) was the third leading cause of death (Abrahams, 2006). According to Bradshaw *et al.* (2003), death due to diarrhoeal diseases in the Eastern Cape accounted for 15% of male and 17,3% of female children under the age of 4 years.

Diarrhoea may be caused by several infections such as bowel infections (Rota virus); bacteria (E.coli, Shigella, Salmonella and Cholera) and protozoa (Giardia, Amoeba and Cryptosporidium); also infections outside the bowel such as bacterial infections (septicaemia and urinary tract infection). Diarrhoea is common in infants and children who are bottle-fed rather than breastfed; who do not have clean and safe water; whose feeding teats and bottles are not correctly cleaned and who live in unhygienic conditions. Diarrhoea is greatly reduced in infants and children who are exclusively breastfed for six months or longer; where there is access to clean water and adequate sanitation facilities;

if mothers use cup feeding rather than bottle feeding and where good hygiene is present (UNICEF & WHO, 2009; Woods, 2008).

2.5 Conclusion

The aim of the survey in this study is to describe the current demographic and socio-economic factors that may influence infant feeding practices of mothers with infants up to 14 weeks of age in the Amathola District. From the researcher's experience as a registered nurse and midwife, women with infants do not always choose a feeding method that is safe under the socio-economic and demographic conditions they live in. Choosing an inappropriate method like for example formula feeding when living in conditions without electricity, no easy access to clean water or proper sanitation and poor hygiene may lead to higher rates of infant morbidity due to the risk of bacterial contaminated feeds. It is clear after reading the literature, that there are still many poverty-stricken areas in the Eastern Cape where inappropriate feeding methods may exist. It is thus important to assess the current situation in this specific area in order to establish its severity and the need for intervention.

CHAPTER 3
METHODOLOGY

3.1 Introduction

A literature review was done in the previous chapter on the socio-economic and demographic factors that may influence the infant feeding practices of women. In this chapter, the research design and methodology, as well as ethical aspects of the research, will be discussed.

3.2 Research Design

A quantitative research approach and non-experimental design was used to gather information on the socio-economic and demographic factors as well as the infant feeding choices of women. A quantitative approach was the most appropriate method because it is systematic, objective and allows for numerical data on a research population to be explained statistically (Maree, 2007 & Muijs, 2004). The non-experimental research design is used mostly in descriptive studies such as this survey. This research design is most widely used with no manipulation of data to get quantitative information about the study population being surveyed (Maree, 2007).

A descriptive survey was carried out to gather the appropriate data to fulfil the research objectives. The purpose of the survey was to obtain quantitative descriptions about certain aspects of the specific study population (Burns and Grove, 2001 & Maree, 2007). According to Aday (1996), a descriptive survey as used in this study obtains information on a profile of characteristics of the specific population which include biographical, demographic, social and economic factors. In a survey, the participant samples are pre-selected before any questionnaires are administered or interviews are conducted (Maree, 2007).

3.3 Population, setting and sampling

3.3.1 Population

The population included all women attending the Nontyatyambo Clinic (also called the NU 2 Clinic) in Mdantsane in the Amathola District in April 2009. The target population was all women with infants up to the age of 14 weeks at the time of the survey. These visits up to 14 weeks of age correspond with the Expanded Programme on Immunization Initiative (EPI) in the first year of life.

3.3.2 Setting

The setting for the survey, the Nontyatyambo or NU 2 Clinic, was chosen due to the large number of patients attending this clinic every day and because it was the most accessible clinic in terms of transport. This clinic assesses ±25 infants per day up to the age of 14 weeks from a Monday to Friday. The clinic offers a variety of health care services, such as antenatal care, labour and delivery, baby immunization, HIV testing, antiretroviral treatments and prevention of mother-to-child transmission of HIV. The clinic is open for these services from 08:00 to 16:00 every Monday to Friday, while labour and delivery services are offered for 24 hours each day.

3.3.3 Sampling

The researcher aimed to recruit 100 mothers and the questionnaires were aimed at the first 100 mothers who met all the inclusion criteria. When one mother withdrew from the study the researcher interviewed another to fulfil the sample of 100 participants. The Nontyatyambo Clinic (NU 2) sees an average of 125 infants per week, thus an average of about 500 per month. According to Stoker's (1985) guidelines for sampling, a population of 500 people requires a 20% sample size. This gives a total of 100 participants to be interviewed (De Vos, Strydom, Fouche & Delport, 2007).

A non-probability, exhaustive purposive sampling method was used. In non-probability sampling methods, "…the researcher must limit his/her findings to the persons or elements sampled". A non-probability sampling method can be easily administered and

tends to be less time consuming than other methods. In purposive or judgmental sampling, the researcher "…employs his or her own expert judgment about who to include in the sample frame. Prior knowledge and research skill are used in selecting the respondents or elements to be sampled" (Burns & Grove, 2001). Each participant was chosen by the researcher herself, based on the specific inclusion criteria. The researcher asked the participants questions in order to establish if they could be interviewed.

Inclusion criteria were as follows: mothers should give consent to participate; they must have an infant up to the age of 14 weeks; they must breastfeed or formula feed their infant and all mothers should be able to understand and speak either Xhosa, English or Afrikaans. Mothers had to meet all of these criteria or they were excluded as possible study participants.

3.4 Data collection

Data was collected in March 2009 during a five-day period, from 7:00 to 16:00. All women who entered the facility with an infant were asked questions in order to establish if they met the inclusion criteria. All interviews took place in a room that was separate and private from the consultation room. Participants or their parents had to sign informed consent prior to the interview and all information was kept confidential.

A structured questionnaire was used to collect the information by means of an interview. The 'Road to Health' card was used to capture data on the birth date. A structured questionnaire allowed all the participants to receive the same questions (Brink, 2000). The participants were allowed a limited range of responses previously formulated by the researcher and the structured interview allowed the researcher to have more control over the interview content. The questionnaire was designed prior to the data collection.

The questionnaire was first piloted in December 2008 and the test-retest formula used to ensure reliability before the official survey proceeded. It was done over a period of two days, during which 20 questionnaires were tested. The interviews were done at the NU 2

Clinic. Minor changes and corrections were then done and the questionnaires were retested for another two days to ensure accuracy. The results of the pilot study showed some spelling errors and a few questions needed to be rephrased. No major changes were necessary. The official survey interviews took about 20 to 30 minutes each. All interviews were conducted in English by the researcher herself.

3.5 Data analysis

The researcher attended training for Microsoft (MS) Excel, worked closely with the Department of Postgraduate Enrolment and Throughput (PET) and the Medical Research Council (MRC) in order to analyse the findings. The researcher developed a sheet in MS Excel on which all 100 questionnaires could be captured. All data were typed into the sheet and totals then calculated. Data were compared and MS Excel calculations were used to develop accurate totals. All data was captured, calculated and analysed on MS Excel. Captured and analysed data were reviewed for possible mistakes by a statistician at the MRC's Dept. Statistics. Nominal and ordinal data were given in frequencies with graphical displays using Office 2007.

3.6 Validity and reliability

3.6.1 Validity

Validity of a study is concerned with the accuracy or truth of a claim, which is important throughout the research process (Burns & Grove, 1997). Content validity as described by Aday (1996) reflects whether the questions are representative of the concepts they are intended to measure. The content validity of the questionnaire was tested by the researcher's supervisor, an expert in the field and the researcher herself who is a registered nurse/midwife and is familiar with the area of research.

Internal validity as described by Burns & Grove (1997:230) is "…the extent to which the effects detected in the study are a true reflection of reality, rather than being the result of

the effects of extraneous variables". The supervisor, expert and researcher who tested the content validity of the questionnaire also evaluated its internal and face validity.

Construct validity "…examines the fit between the conceptual definitions and operational definitions of variables" (Burns & Grove, 1997:232). The construct validity of the study was ensured by carrying out a pilot study proceeding with the data collection.

Instrumental validity is "…concerned with the extent to which study findings can be generalized beyond the sample used in the study" (Burns & Grove, 1997). This was ensured through making use of the above-mentioned experts in the field who reviewed and evaluated the questionnaire; by doing a pilot study to test the questionnaire for its validity with regards to the appropriateness of the interpretations sought for this survey.

3.6.2 Reliability

The reliability of a survey refers to the quality of the measurement method in which it measures the same concept over time; in other words, whether the women would answer the same question in the same way after a period of time (Aday, 1996). This is important as the questions regarding infant feeding depended on recall. Reliability testing "…is concerned with such characteristics as dependability, consistency, accuracy and comparability" (Burns & Grove, 1997). Reliability was assured in the following ways:

- the interviewer/researcher was a registered nurse/midwife herself in the Western Cape;
- the interviewer did not know any of the participants because interviews were conducted in the Eastern Cape;
- the researcher was always present in the event of questions needing clarification.

The reliability of the questionnaire was ensured by its being piloted. This was done by using the test-retest formula and giving all participants the same list of questions in their interview.

3.7 Limitations of the study

The study was limited to breastfeeding and formula feeding participants with an infant of less than 14 weeks of age only. HIV/AIDS was excluded from the study due to ethical reasons. The study was limited to only one clinic in the Amathola District. The reason for this is that the researcher had to travel from Cape Town to East London. This also required using private funds for accommodation and a rental car, which imposed major financial constraints on the researcher. Furthermore, the researcher was not familiar with the geographical area and needed to limit driving through an unfamiliar geographical area on her own. Time was also another constraint due to the fact that the researcher was employed full time and needed to have leave approved before each departure.

3.8 Ethical Aspects

3.8.1 Ethical Approval

Ethical approval was obtained from the Senate Higher Degrees Committee and the Ethics committee of the University of the Western Cape. In addition, the DoH Eastern Cape Province (Appendix 1) as well as the Amathola District Municipality and Nontyatyambo district clinic gave consent for the study to take place.

3.8.2 Informed consent and participant rights

Informed consent was obtained from each participant (Appendix 2 and 3). Privacy was ensured by the participants being allowed to withdraw from the study at any time during the research without their names being disclosed. Participants were assured that this research would cause no physical harm to their health. All participants were comprehensively informed of the research content. They were informed that they had a choice of participating/declining and were required to give their written consent, which contributed to the right to privacy. They were informed that in the event of withdrawal, they would not be denied access to health care and their names would not be disclosed because the researcher worked independently from the clinic, was a student from the Western Cape and her work could not affect the clinic's health care provision.

Participants were both legally and factually capable of consenting to research. In the case of minors or mothers 18 years and younger, the parent was asked to sign consent after being informed of the research content and participation was accepted by the minor. All participants were literate in signing their name on the informed consent. One participant gave consent to participate, but then decided not to participate during the conduction of an interview and withdrew from the study. This uncompleted questionnaire was confiscated by the researcher and another study participant was recruited. No questions about HIV/AIDS were included in the study.

Anonymity and confidentially were ensured by numbering the questionnaires and using no participant names on the questionnaires. Questionnaires and consent forms were filed separately. Participant names could not be linked to any questionnaires. The participants were informed that their names would not be used in any reports, presentations or publications of the study. All records of the survey are kept confidential by the researcher herself and in a locked cabinet at all times when not utilized for the study purpose. Feedback and dissemination of the findings would be issued to the staff of the clinic once this had been approved by UWC.

CHAPTER 4
RESULTS

4.1 Introduction

The main findings of the study are presented in this chapter. The aim of the analysis was to describe the socio-economic and demographic factors that may influence infant feeding practices of women with infants up to 14 weeks of age in the Amathola District. Data from 100 (N=100) interview questionnaires (101 interviews was obtained and one interview was terminated) were used. Data analysis was done using the MS Excel (2007) programme. Nominal and ordinal data are given in frequencies with graphical displays.

4.2 Infant information

4.2.1 Gender distribution of infants

In this study, - 54 or 54% - of the infants were males and - 46 or 46% - were female (Figure 1). All the findings are based on the assumption that the sex of the infant does not affect feeding practices but is part of its biographical information.

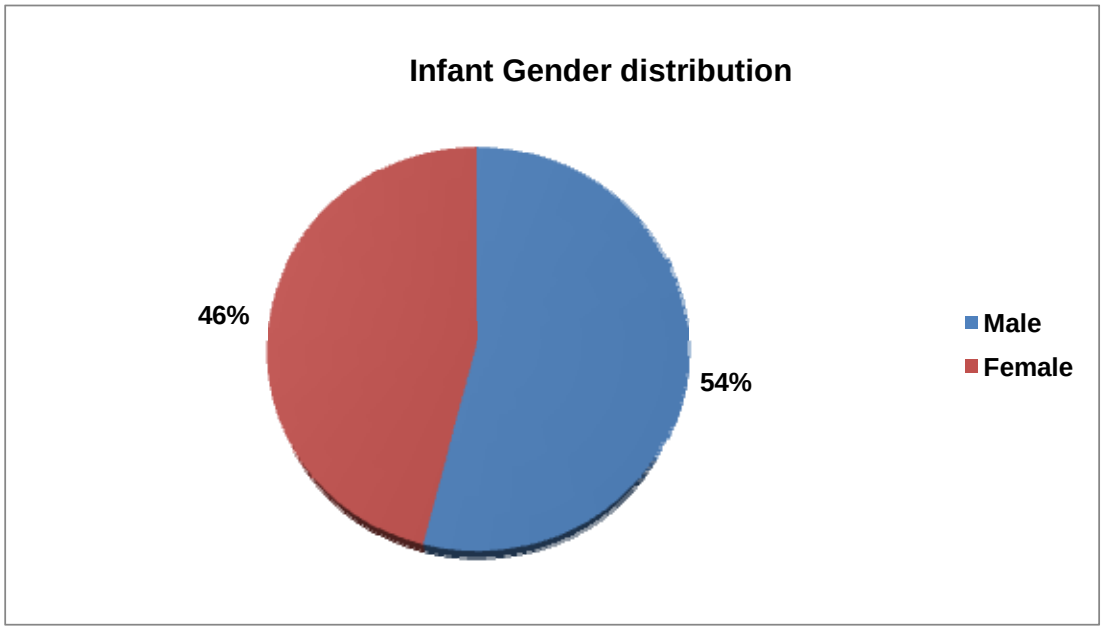

Figure 1: Gender distribution of infants

4.2.2 Place of birth

Most participant mothers gave birth at Cecilia Makiwane Hospital (47%), which is the closest hospital in the area. Twenty-four participants (24%) gave birth at the NU 2 Clinic. Twenty participants (20%) gave birth at Frere Hospital which is the main government hospital in East London. Four participants (4%) had unplanned home births, three (3 %) gave birth at the Empilwene Clinic and two (2%) had their babies at unlisted places (Figure 2).

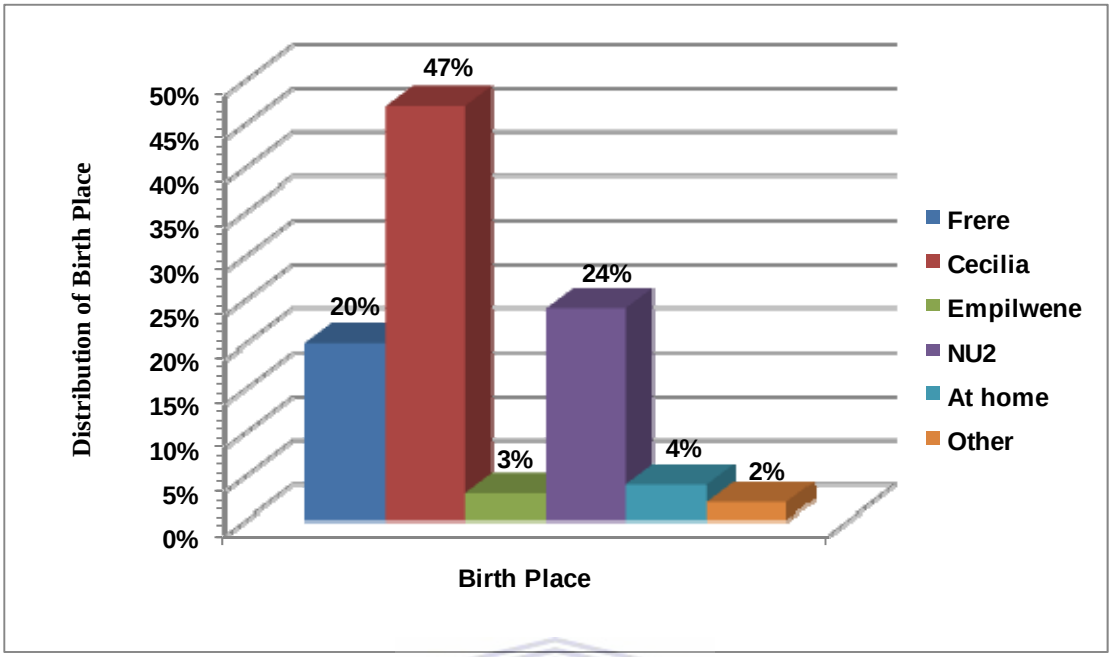

Figure 2: Distribution of place of birth of infants

4.3 Infant feeding choices and practices

4.3.1 Mothers that exclusively breastfeed or exclusively formula feed their infant

Of all the participant mothers, 35 (35%) reported having exclusively breastfed their infants and 43 (43%) having exclusively formula fed their infants. Twenty-two mothers (22%) of the mothers used mixed feeding. Mixed feeding has been shown to be a higher risk of infection (gastrointestinal and respiratory infections), leading to higher rates of morbidity (Bradshaw & Dorrington, 2006). It has been proven that infants not breastfed have a six-fold greater risk of dying due to infectious diseases within the first two months of life (UNICEF & WHO, 2009). It is recommended that a mother either breast-feed or formula feed (Figure 3).

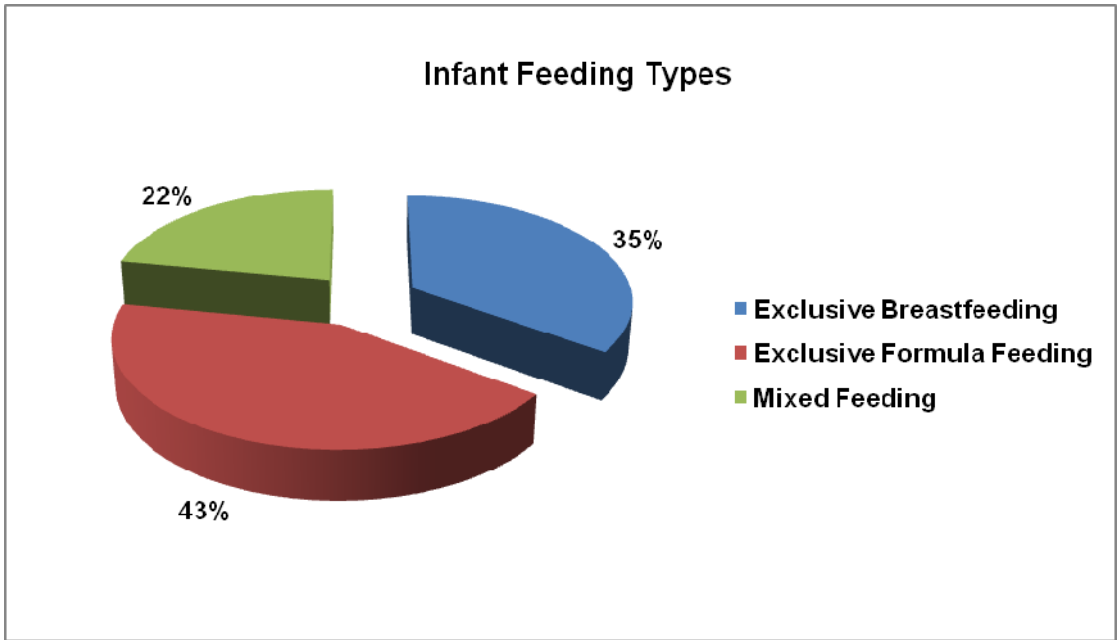

Figure 3: Types of infant feeding in participant mothers

4.3.2 Type of water used to make formula feed in exclusive formula feeding and mixed feeding participants

The correct preparation and mixing of formula milk is very important in order to ensure that adequate and healthy feeds are give to the infants. According to the infant formula instructions, cooled down boiled water should be used to make the feeds. Out of the 65 participants mothers who reported the use of formula feeding, be it in exclusive or mixed practices, a total of 56 participants (86,1%) used the correct method (cooled down boiled water). Seven participants (10,8%) used one of the incorrect methods, i.e. cold water, and two participants (3,1%) used another incorrect method, i.e. boiling water (Figure 4). Diseases such as malaria, cholera, diarrhoea and intestinal worms are some of the water-related diseases that are caused by poor quality water (National Population Unit, 2001). The use of unsafe water in formula feeding (not cooled down and boiled) has been linked to poor socio-economic conditions and may be the cause of the above-mentioned disease in infants (Bradshaw *et al.*, 2003).

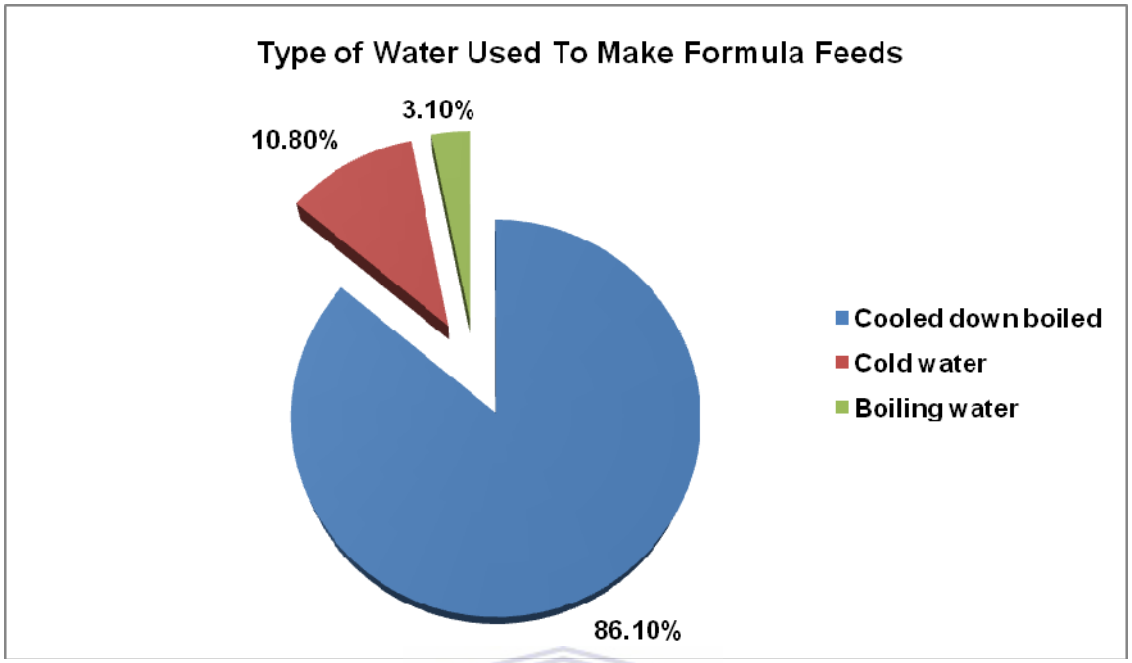

Figure 4: Type of water used by formula feeding participant mothers

4.3.3 Government supplied formula

Mothers who are HIV positive and who decide to formula feed their infants should be supplied with government formula for the first six months of the infant's life (De Wagt & Clark, 2004). Mothers who are HIV negative and who decide to formula feed their infants need to buy their own formula milk. Of the 65 participant mothers who formula feed, not all received the formula from the government and had to obtain it at their own expense. Thirty-six participants (55,3%) reported receiving government formula, while twenty-nine participants (44,7%) did not receive government formula. This means that - 29 or 44,7% - of formula feeding mothers bought milk at their own expense. During 2005, it was found that poverty levels in the Amathola district had actually increased since 1996 (Amathola District Municipality, 2007). Adequate finance is vital to procure formula milk in case it is not provided by the government.

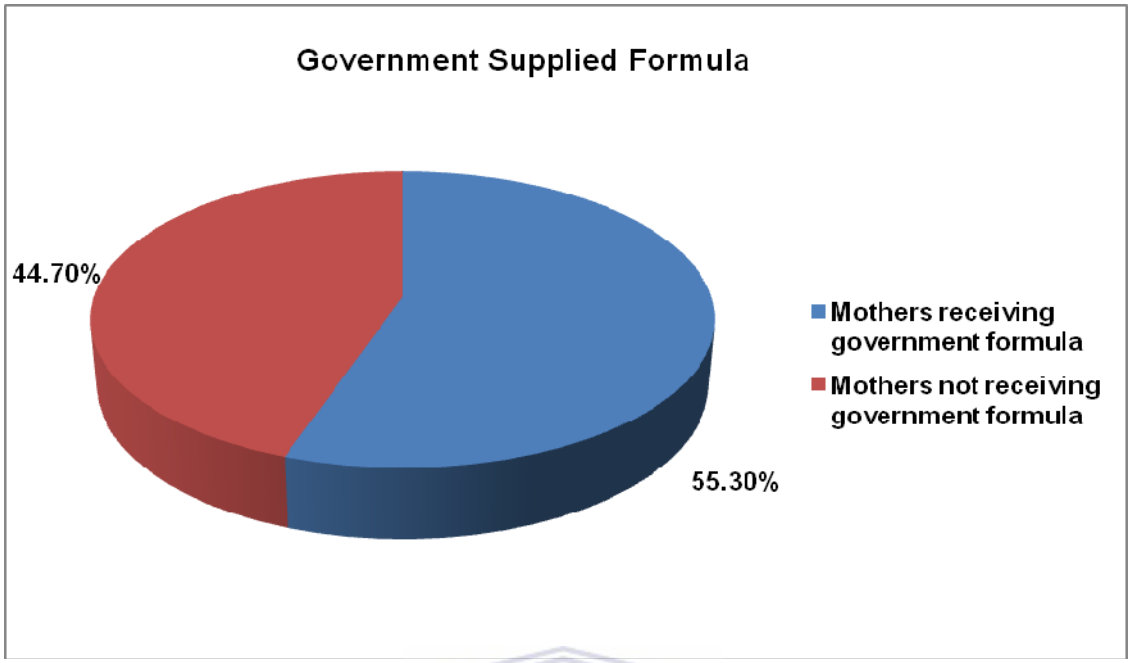

Figure 5: Percentage of formula feeding participant mothers receiving government supplied formula

4.3.4 Use of milk left after a feed

Of the 65 participants mothers who formula fed their infants, 36 (55,4%) reported that they used the correct method to discard milk; 20 (30,8%) reported storing the feeds in refrigerators; while 9 (13,8%) stored feeds at room temperature. The results therefore show that – 29 or 44,6% - of mothers still used incorrect methods in feed preparation (Figure 6). According to the instructions on how to prepare formula feeds, milk should be made for each feed individually; fresh feeds must be prepared each time the baby is fed and any left-over milk should be discarded. This is to prevent that unsafe and unhygienic feeds, possibly contaminated by micro-organisms, are given to infants (Bergstrom, 2003).

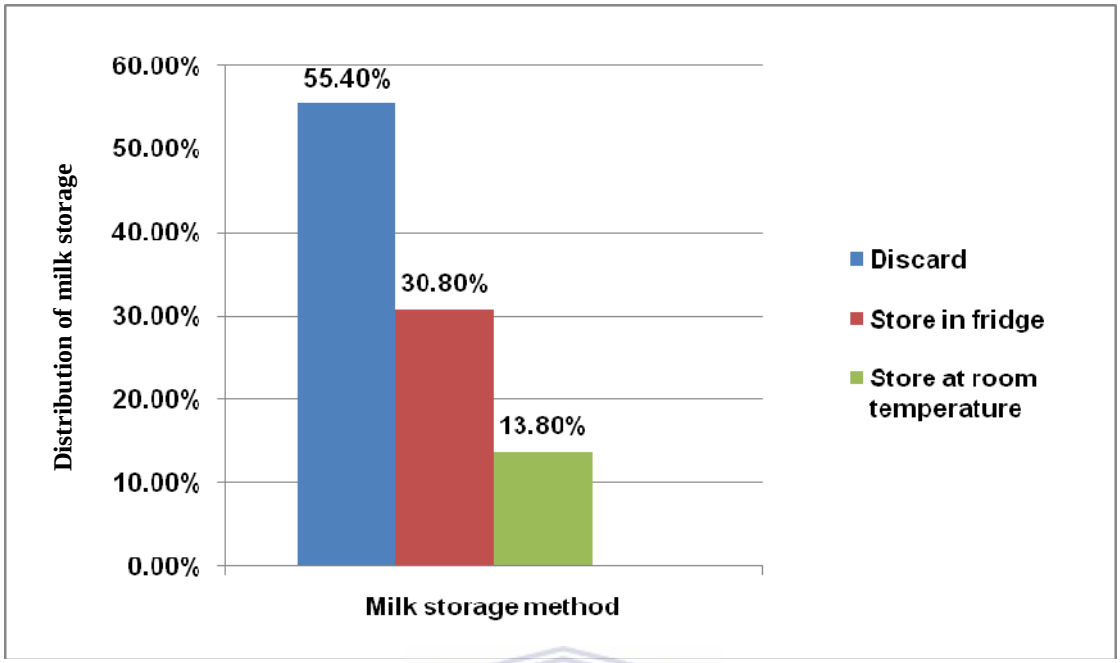

Figure 6: Options for left-over milk storage chosen by formula feeding participant mothers

4.4 Participating mothers' information

4.4.1 Age of mother

The ages of participant mothers varied from 14 to 41 years. The largest number of participants -18 or 18% - was in the age group 29 to 30 years. Only 1 (1%) participant was in the age group of 41 years and above (Figure 7).

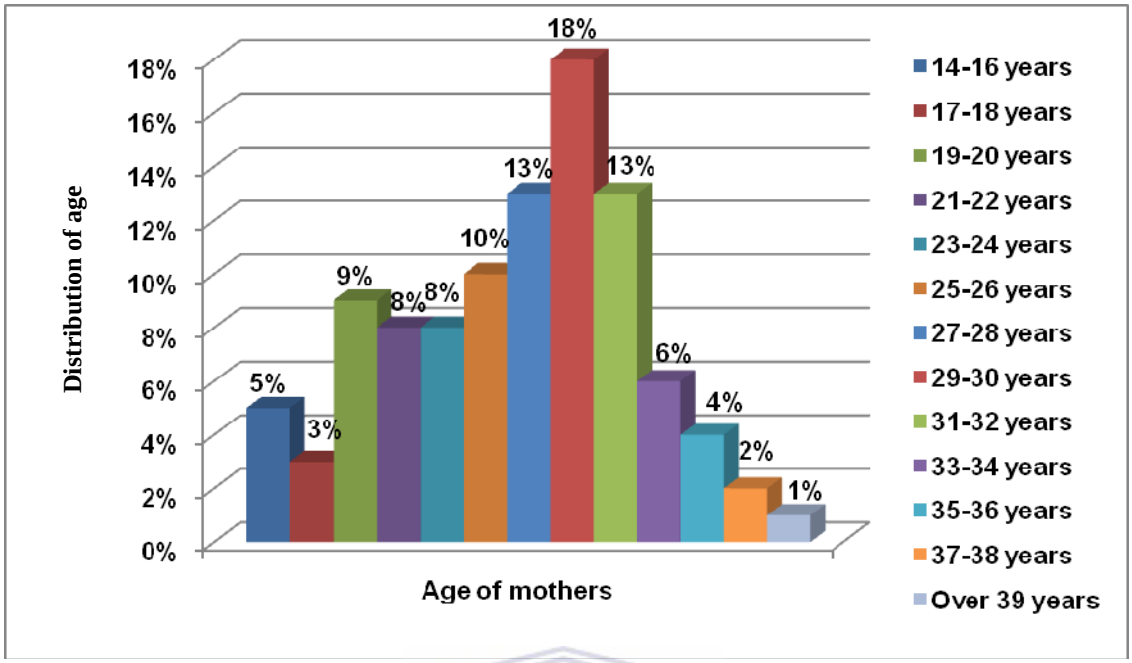

Figure 7: Age of participant mothers in years

4.4.2 Teenage mothers

Of the 100 participants mothers in this study, - eight or 8% - were still teenagers falling within the age group of 14-18 years (Figure 8). This excludes school-going participants over the age of 18. It is possible that women aged 18 years or younger, with a lower level of education, may not have the necessary support systems (for example a partner, husband or family). A previous study (Dangal, 2005) has also shown the correlation between poverty and teenage pregnancy. Not only is teenage pregnancy a risk for the mother's emotional well-being and health, but it is also a risk for the infant should the mother not be well prepared for her pregnancy and be sufficiently supported before and after the birth.

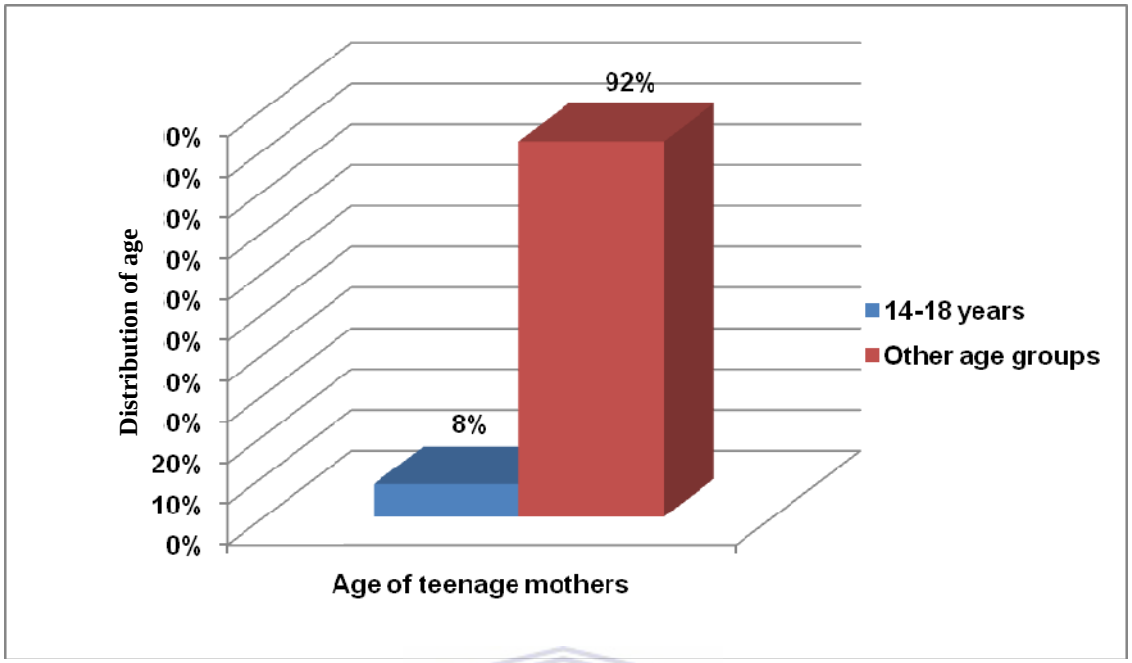

Figure 8: Percentage of teenage participant mothers in years

4.4.3 Level of education

The largest group of participant mothers – 45 or 45% - reported having passed Grade 12. Twenty-nine participants (29%) had passed grade 11, while twelve participants (12%) had passed Grade 10. Three participants (3%) had not attended school at any stage in their life. The Grade 6, 7, 8 and 9 ratings were three participants (3%), one participant (1%), 4 participants (4%) and 3 participants (3%) respectively. Although the study indicates that most mothers did have adequate schooling, 55 or 55% of the mothers did not make it to Grade 12. This may impact the choice and method of infant feeding (Figure 10). Older studies (Lizarraga, Maehr, Wingard and Felice, 2005) have found that teenagers with lower educational levels often choose not to breastfeed which in turn may have negative effects on infant health.

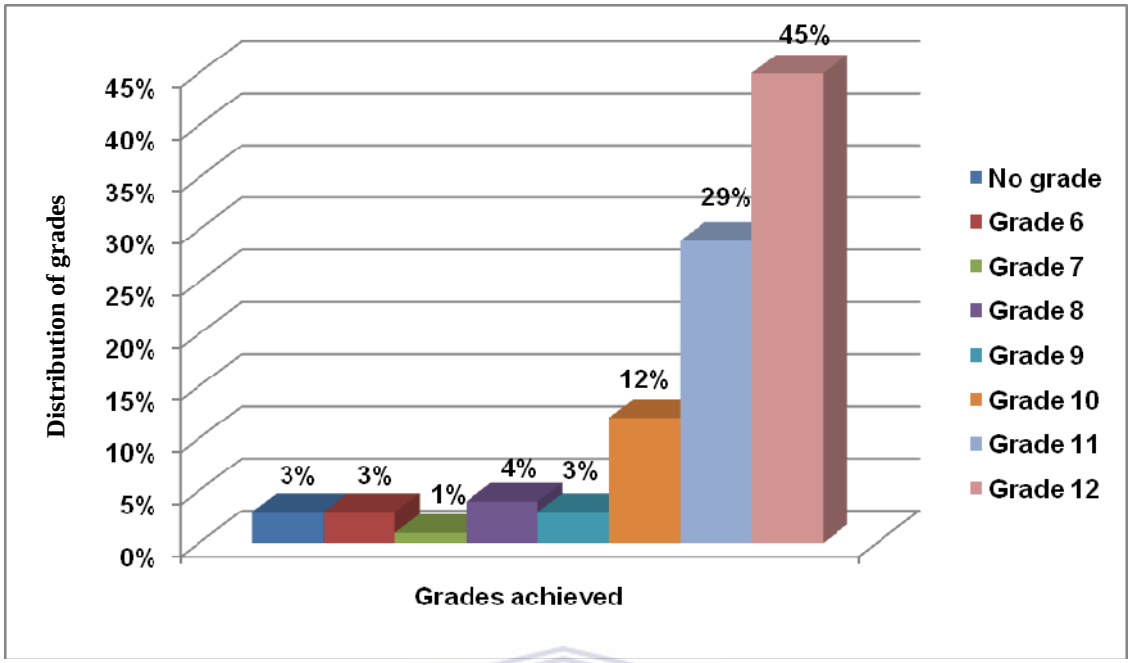

Figure 9: Level of education attained by participant mothers

4.4.4 Employment status before pregnancy

Only – 48 or 48% - of participant mothers said that they were employed before they became pregnant with their babies. The remaining – 52 or 52% - were thus unemployed before the pregnancy (Figure 10). The Amathola District is characterized by low employment figures (SSA, 2008). Not only does unemployment affect mothers' financial stability, but also their emotional and health status which may have a detrimental effect on their infants (Green & Hendershott, 2001). Increased infant mortality rates have been linked to financial instability (Ashman, 2005). A stable and reliable income through employment is needed for women who decide to formula feed. Optimal feeding practices can only be obtained by either receiving or buying the formula feed as well as the necessary equipment to prepare it properly. If these are not available, infant milk may be prepared incorrectly and unhygienic.

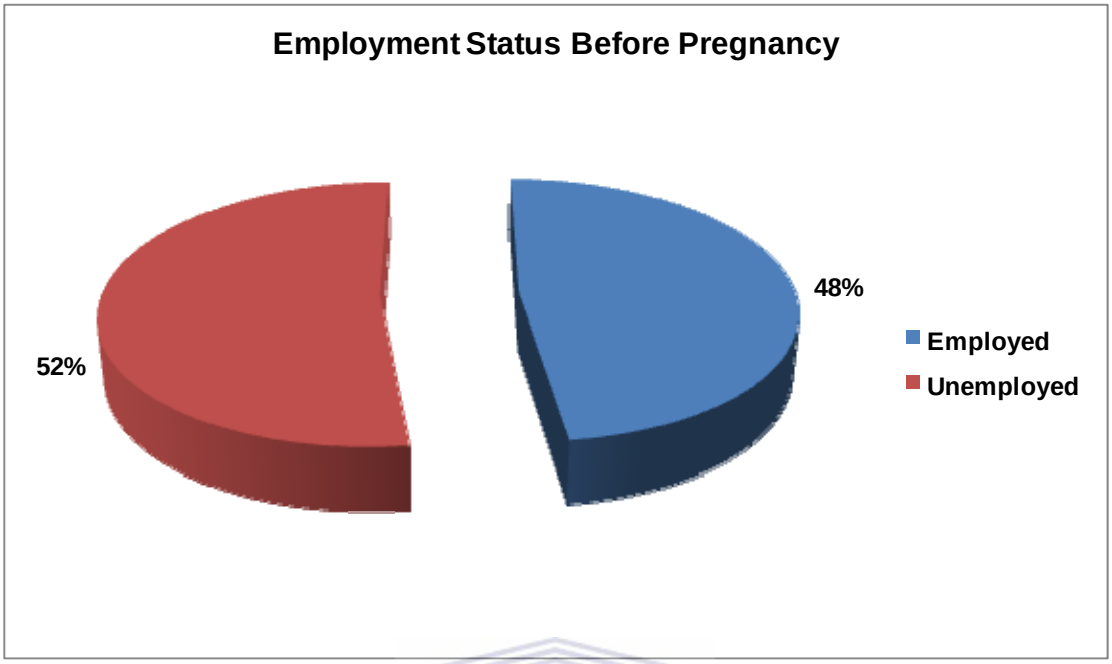

Figure 10: Employment status of participant mothers before pregnancy

4.4.5 Type of work carried out by participant mothers before pregnancy

Thirteen participant mothers (13%) were employed as domestic workers before they fell pregnant; while another 13 (13%) had other types of jobs. Only eight participants (8%) reported that they had a professional job. Seven participants (7%) worked as shop assistants and the remaining seven (7%) were self-employed (Figure 11). The type of work may indicate their educational abilities and financial status, which in turn may affect infant feeding practices.

Figure 11: Type of employment by participant mothers before pregnancy

4.4.6 Marital status of participants

Sixty-two participant mothers (62%) reported that they were single and had never been married; followed by 20 (20%) who reported co-habiting; 17 (17%) were married and one (1%) reported an unlisted status (Figure 12). In South Africa, single parenting is becoming more acceptable, and the rate of single women having children is increasing (Palamuleni et. al., 2007). Being a single parent may influence a mother's choice of infant feeding because she may not have a partner/husband as a support system (Sika-Bright, 2010).

Figure 12: Marital status of participant mothers

4.4.7 Parity of mother

The average parity for the whole group of participant mothers was 1.8. As can be seen in Figure 13, most participants (46 or 46%) had a parity of one, followed a parity of two (35 or 35%), a parity of three (13 or 13%), a parity of 4 (5 or 5%) and a parity of 5 (1 or 1%). Fertility rates have been found to be higher in rural than urban areas (Palamuleni *et al.*, 2007). Higher fertility rates and adolescent pregnancies correlate with poor availability of health education such as family planning, economic factors, level of educational and cultural beliefs, which in turn may influence infant feeding practices (Van Rensburg, 2004).

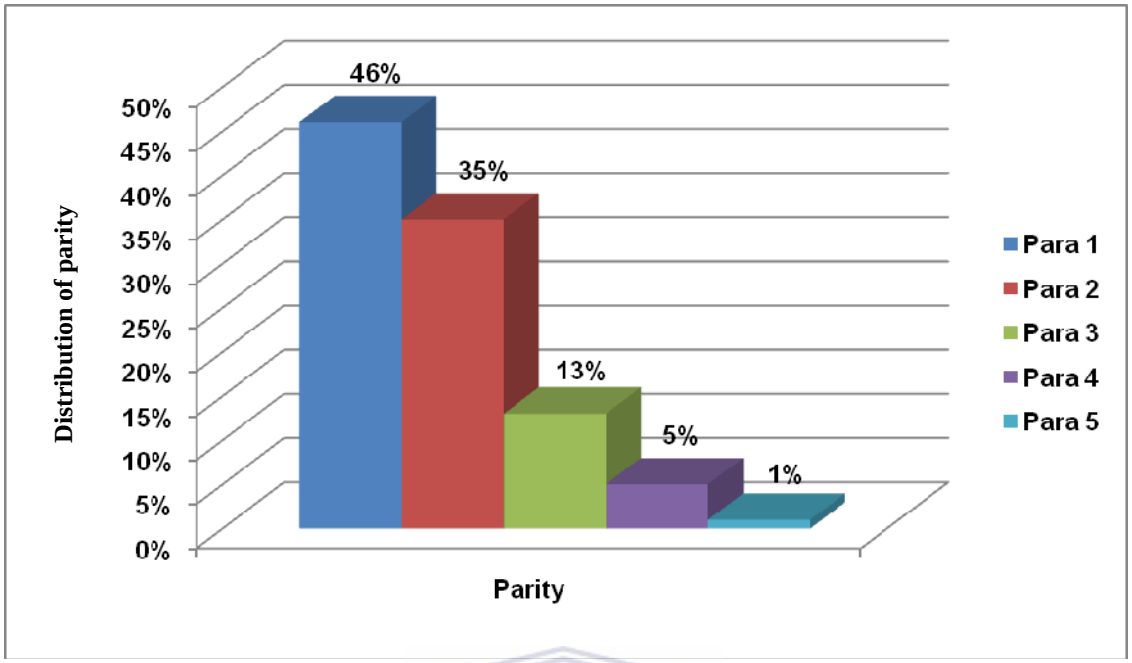

Figure 13: Parity of participant mothers

4.4.8 Average parity

The average parity for the breast feeding and formula feeding group was 2.06 and 1.66 respectively (Figure 14). This shows that the average parity for the breast feeding group is higher than for the formula feeding group. Increased parity may put more financial strain on a mother should she formula feed her infants.

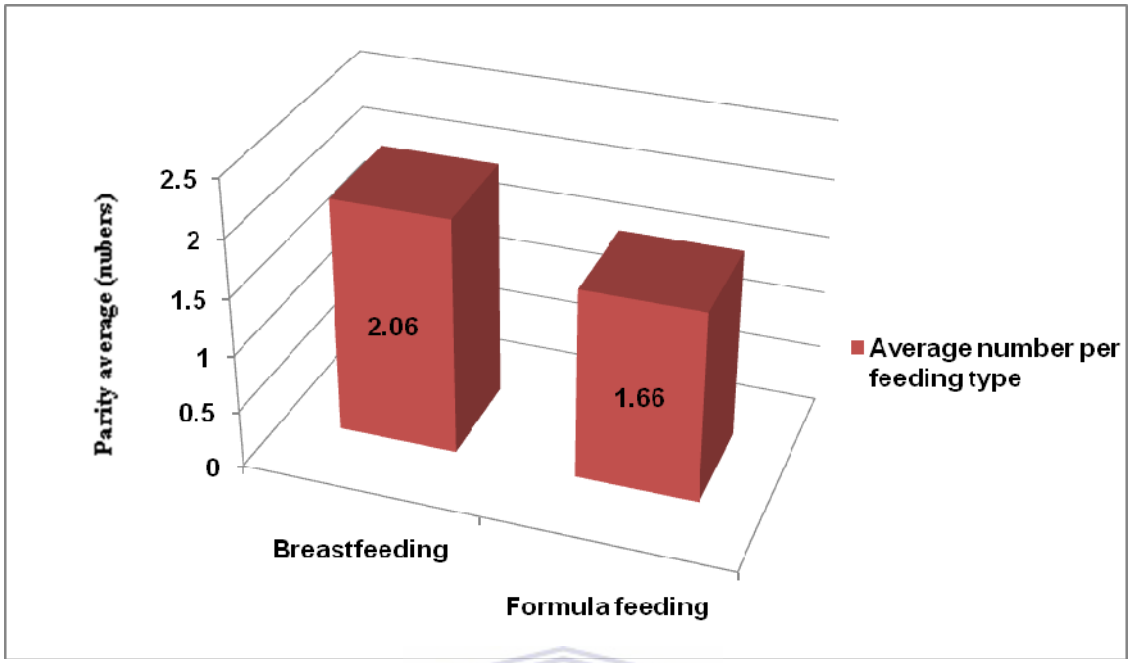

Figure 14: Average parity for breastfeeding and formula feeding participant mothers

4.4.9 Dwelling type

This type of dwelling (house) in which the participant mothers lived varied amongst the group. Sixty-three participants (63%) said that they lived in a house, 21 (21%) lived in informal dwellings, 14 (14%) in a flat and 2 (2%) in a room in a house (Figure 15). Small rooms and informal dwellings have been found to have poorer hygiene than proper dwellings with bigger rooms. Poor ventilation in smaller and poorly-constructed houses may influence infant feeding practices by creating an increased risk of food contamination and the spread of infection, leading in turn to infant morbidity (UNICEF & WHO, 2009).

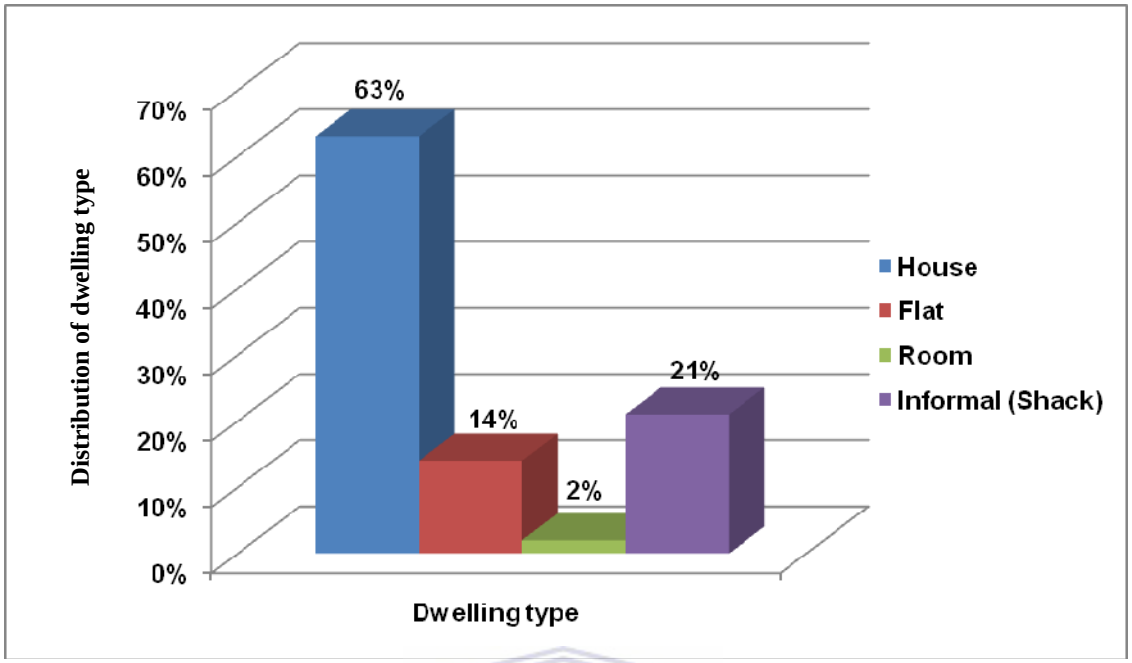

Figure 15: Dwelling type of participant mothers

4.4.10 Ownership of dwelling

Fifty-two participant mothers (52%) live in rented apartments and forty-eight participants (48%) in their own places of residence (Figure 16). Owning a home may indicate financial stability (Green & Hendershott, 2001). Good financial stability in turn reflects ability to use healthier infant feeding practices due to the availability of finance to buy sufficient feeding equipment.

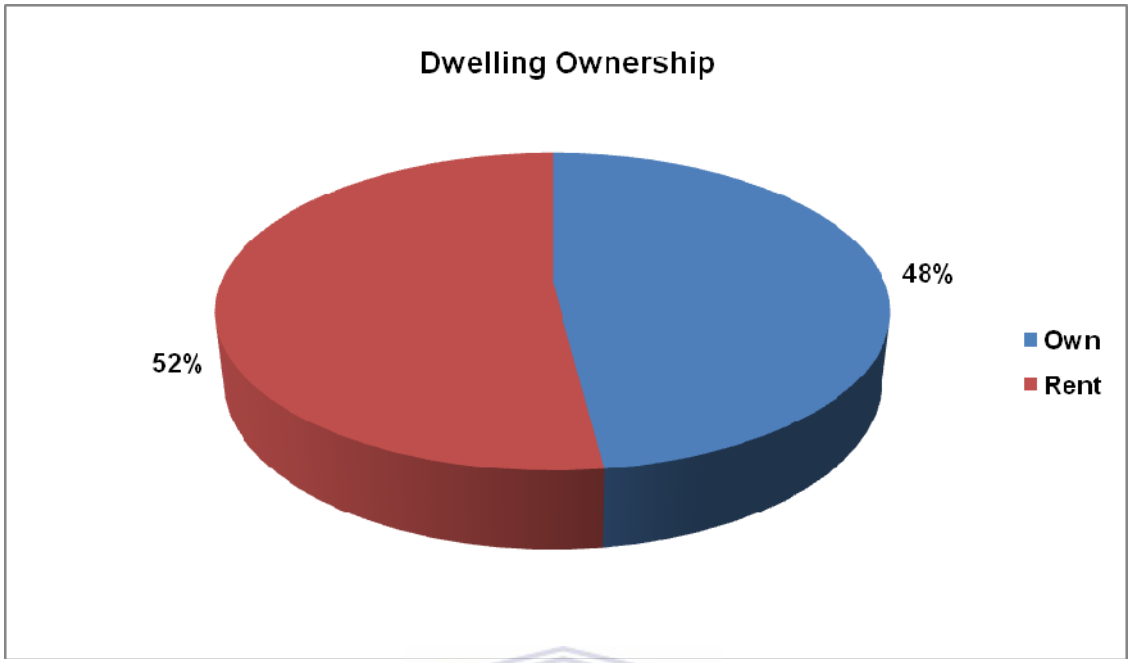

Figure 16: Percentage of participant mothers that rent or own a dwelling

4.4.11 Building material

Material used in the building of dwellings differed between concrete/cement, informal and traditional. Sixty participants (61%) lived in a concrete/cement dwelling. Twenty-four participants (24%) reported living in an informal dwelling. Fifteen participants (15%) lived in a hut (Figure 17). Many rural areas have houses constructed with informal or traditional building material and/or grass-thatched houses. There is a high possibility that these dwellings lack adequate sanitation due to having no electricity, water tap or toilet facility (Ahsan & Quamruzzaman, n.d.).

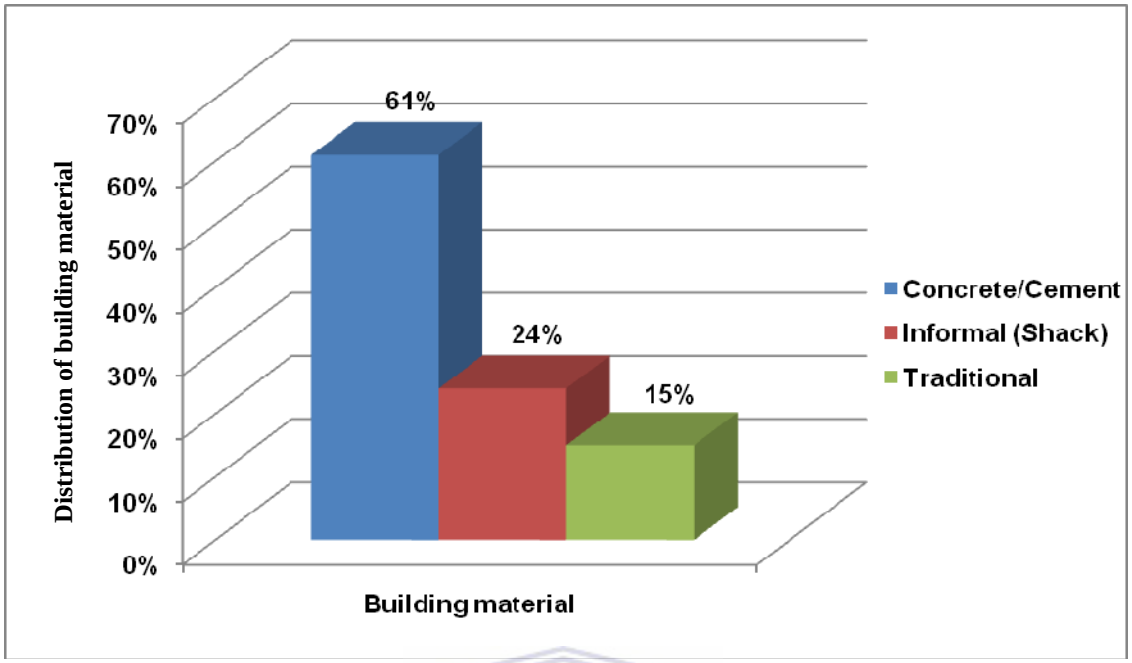

Figure 17: Type of building material used by participant mothers

4.4.12 Number of people living in a dwelling

The number of people living in a dwelling ranged from one to eight. Of the 100 participants mothers, twenty-four (24%) reported having four and another twenty four (24%) to have five people living in their dwelling. One participant (1%) reported having one person in the dwelling, four (4%) reported having two people, sixteen (16%) reported three, twelve (12%) had six, nine (9%) reported having seven and ten (10%) reported having eight people in the dwelling (Figure 18). A comparison of dwelling size and number of people occupying the dwelling may be an indication of financial and health status (Green & Hendershott, 2001). It has been proven that the more people there are in a household, the higher the risk of spreading communicable diseases to other family members (UNICEF & WHO, 2009).

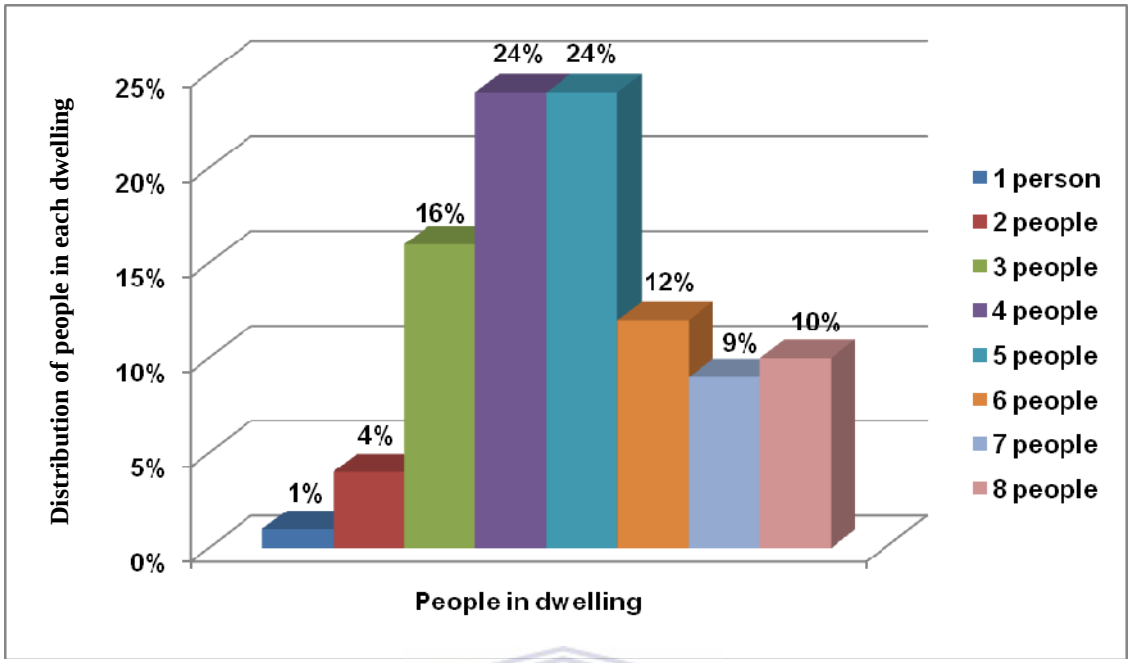

Figure 18: Number of people living in participant mother's dwelling

4.5 Access to safe and basic services

4.5.1 Access to a flush toilet inside dwelling

Access to a flush toilet inside the house seemed to be lacking in many households. Forty-seven participants or 47% did not have a flush toilet in their houses compared to – 53 or 53% - of participants who had such toilet facilities (Figure 19). It is known that bacteria thrive in areas with poor hygienic conditions. This may lead to contaminated feeds which may lead to higher rates of infant morbidity (UNICEF & WHO, 2009).

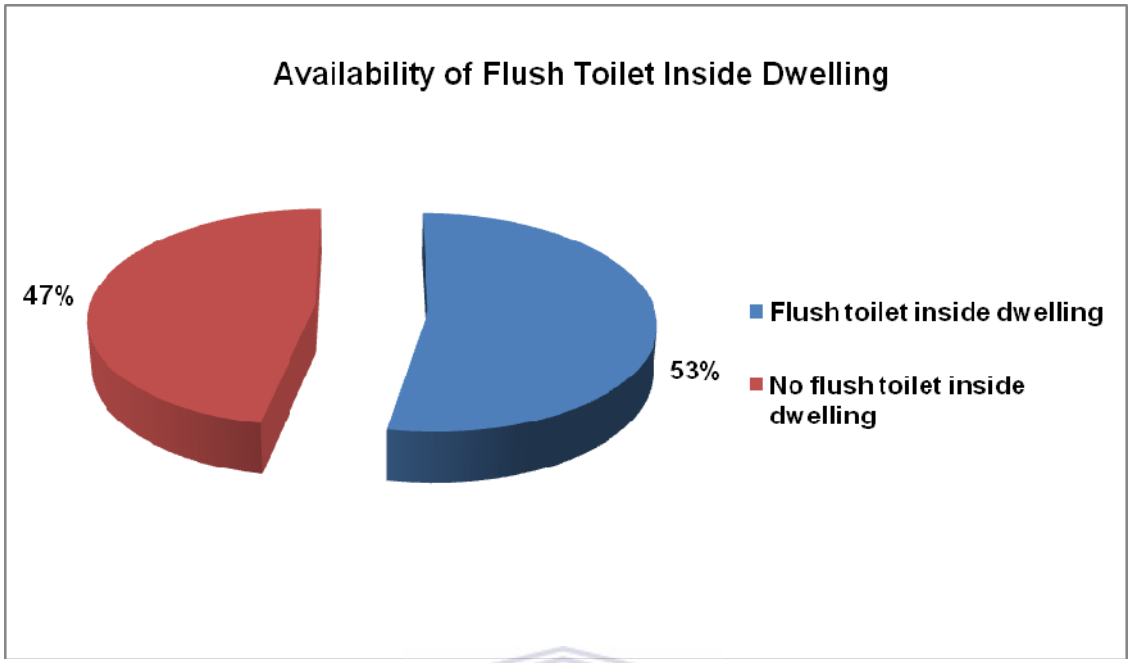

Figure 19: Percentage of participant mothers with a flush toilet inside their dwelling

4.5.2 Access to water through a tap inside the dwelling

Most participants, a total of – 69 or 69% - had access to tap water in their houses, while – 31 or 31% - reported using other sources of water (Figure 20). Safe water is needed for mothers to make formula feeds and to clean and sterilize feeding utensils (UNICEF & WHO, 2009).

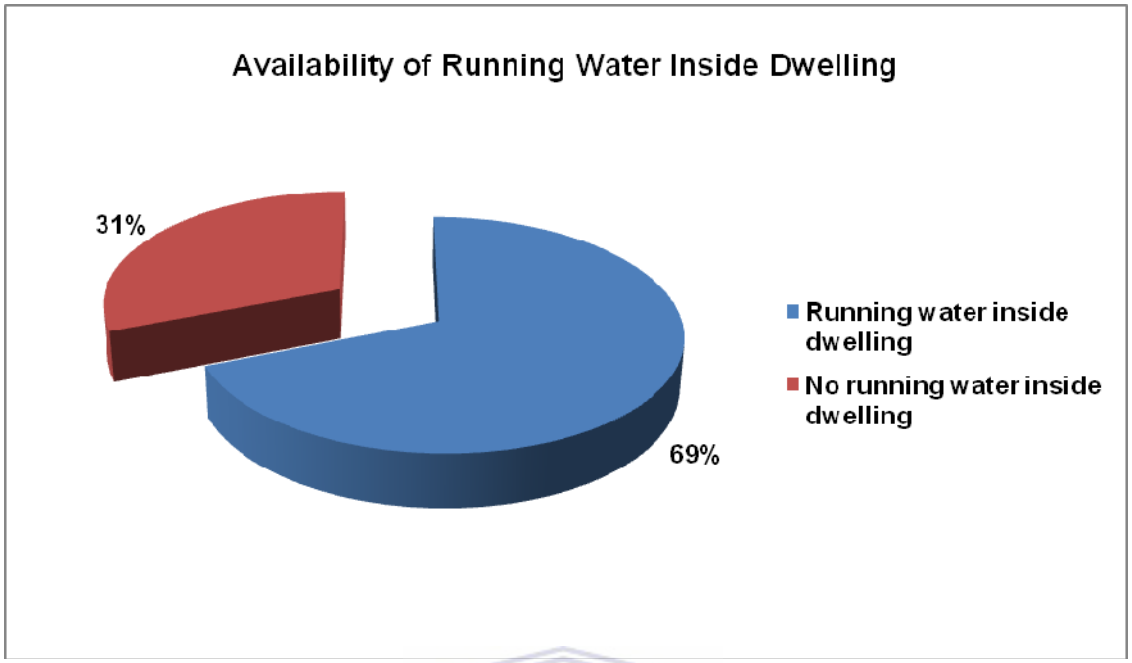

Figure 20: Percentage of participant mothers with running water inside their dwelling

4.5.3 Working items inside dwelling

Eighty-seven participant mothers (87%) reported having a working cell phone in their home. Eighty-six participant mothers (86%) said they had a working stove. The following number of working items were reported to be in the homes of participants; a refrigerator – 64 (64%); a radio – 75 (75%); a television – 69 (69%); a telephone – 10 (10%); a car – 8 (8%) and a microwave – 24 (24%) (Figure 21). Working items in a dwelling may also be an indication of financial stability.

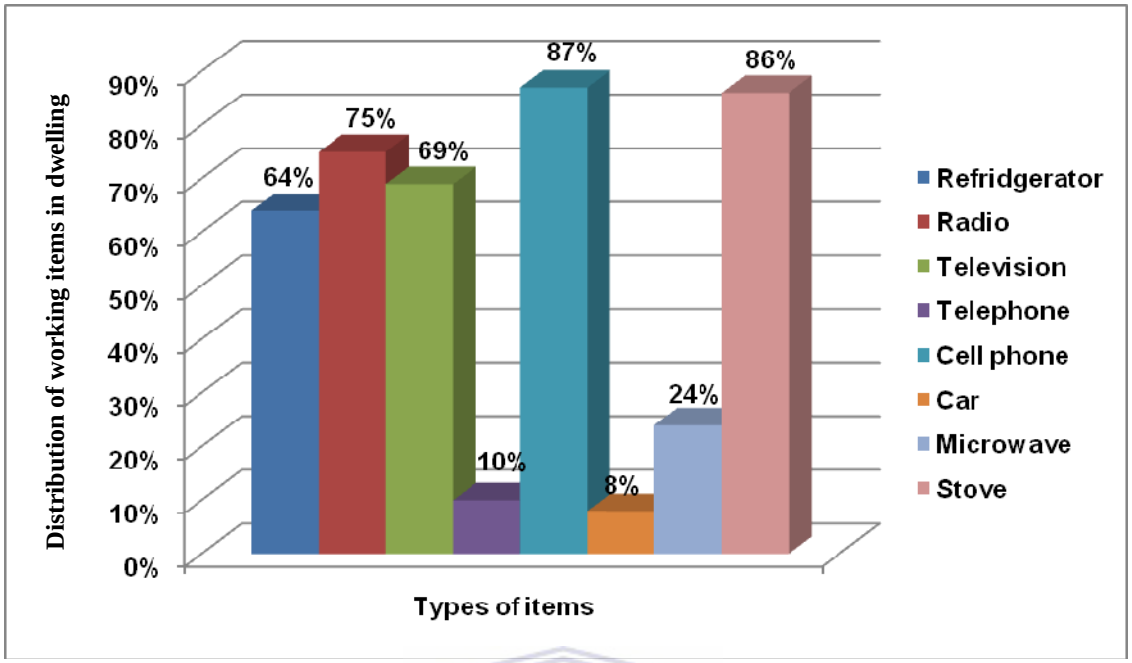

Figure 21: Different types of working items in dwellings of participant mothers

4.5.4 Main source of energy used for cooking

Hygienic, boiled water is essential for making feeds and the study investigated the different methods used by the all mothers for boiling the water. The methods, as shown in Figure 22, included electricity 52 participants (52%), paraffin 36 (36%), gas seven (7%); wood five (5%) and charcoal none (0%). This shows that there were mothers who still used wood fires for cooking. Wood fires require the collection of wood, preparing and lighting the fire, which all take time and effort compared to using electricity. When time is limited women may resort to using unsafe tap water which in turn leads higher risks of infectious diseases (Papathakis & Rollins, 2004).

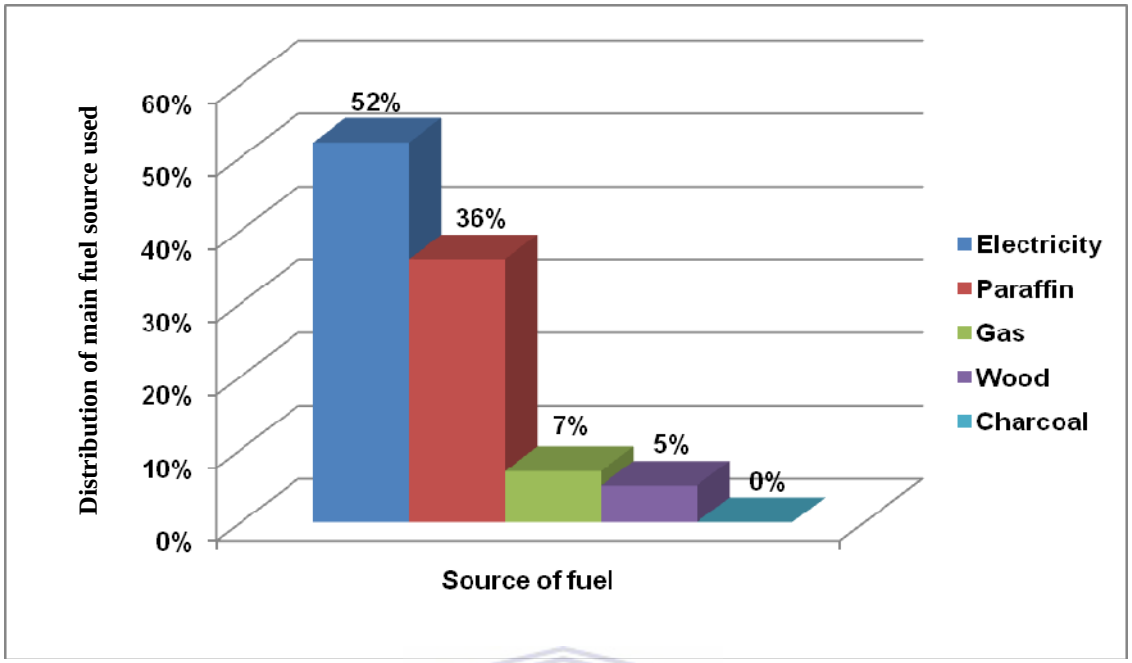

Figure 22: Main sources of energy used for cooking in the dwellings of participant mothers

4.5.5 Access to electricity

Fifty-two participant mothers or 52% reported that they had electricity in their dwellings while – 48 or 48% - of participant mothers did not have electricity (Figure 23). Unhygienic or contaminated feeds may arise from water not being adequately boiled should mothers not have adequate facilities to do so (UNICEF & WHO, 2009).

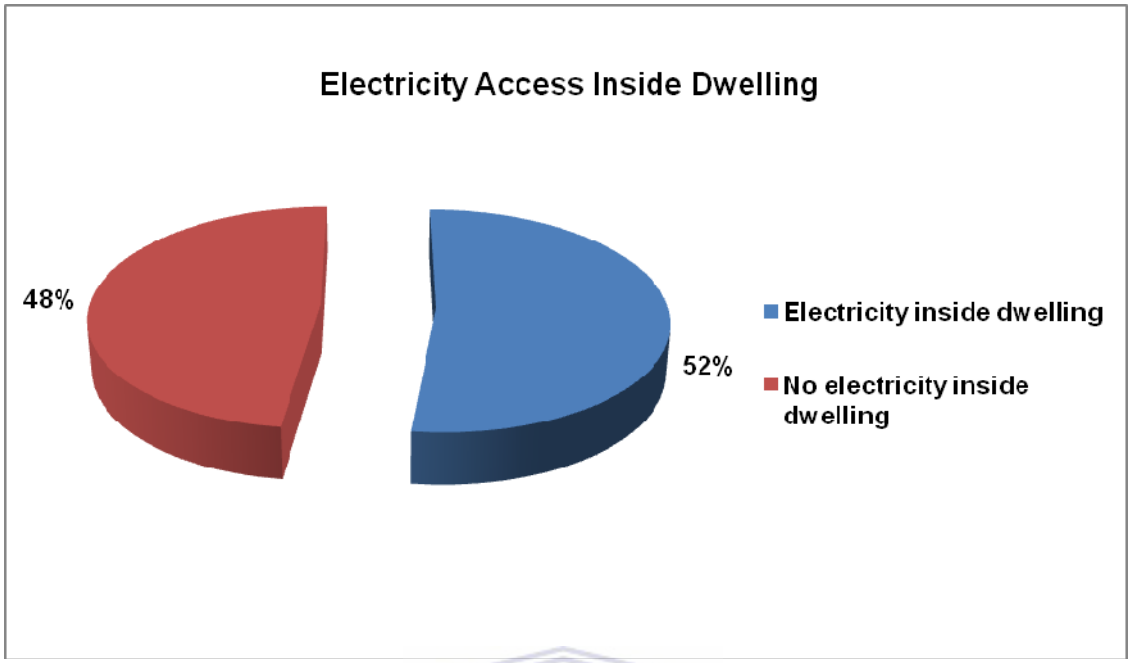

Figure 23: Access to electricity inside the dwellings of participant mothers

4.5.6 Access to health services

Multiple modes of transportation were used by most participant mothers. The majority said that they both walked (75 or 75%) and took a taxi (47 or 47%) to the nearest clinic. Only two participants (2%) reported using the bus, no participants (0%) took a train, three (3%) had a car and one (1%) took transport not listed (Figure 24). Walking was the main means of transport for participants. In the event of a child being sick or requiring emergency care, a mother who could not afford other means of transport, needed to walk quite a long distance from her home to the nearest clinic. In addition, formula feeding participants that received government supplied formula, had to collect it from the clinic.

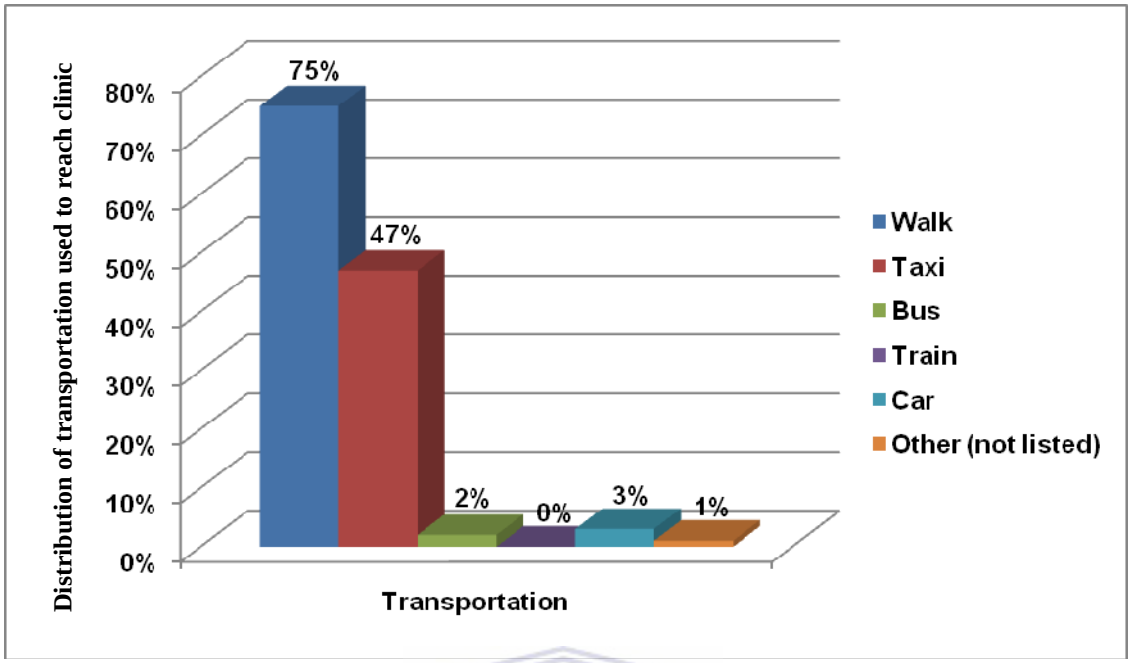

Figure 24: Different types of transportation (either one or more) used by participant mothers to reach clinic

4.6 Financial status

4.6.1 Main source of income

Only -14 or 14% - of participant mothers earned their own income. Thirty-six participants (36%) reported receiving their main source of income from their husbands or partners, while twenty-eight participants (28%) received this from a grandparent. Seven (7%) and fifteen (15%) respectively of participants obtained their income from a sibling or some other sources (Figure 26). This shows that most mothers were not self-reliant as most of them were dependant on another person's income. This scenario influences infant formula feeding practices far more than breast feeding practices. Breast feeding is usually cost-effective compared with formula feeding practices and is mostly a better outcome for financially unstable mothers (Gartner & Eidelman, 2005).

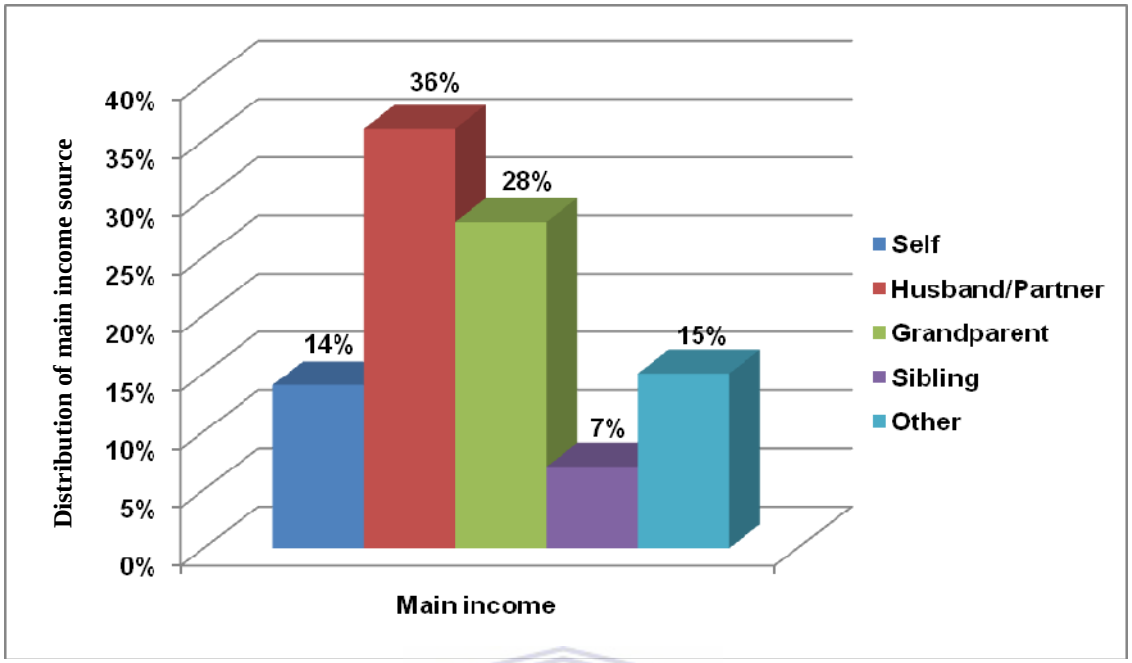

Figure 25: Main source of income for participant mothers

4.6.2 Number of members dependent on main income per household

Another issue is the number of people per household which is dependent on the main source of income in that household. About – 27 or 27% - of the participant mothers reported that four people were dependent on the main income. The highest number of dependants on an income was eight people, as reported by – 4 or 4% - of the participants (Figure 26). This issue has the same implications as the previous section (4.6.1).

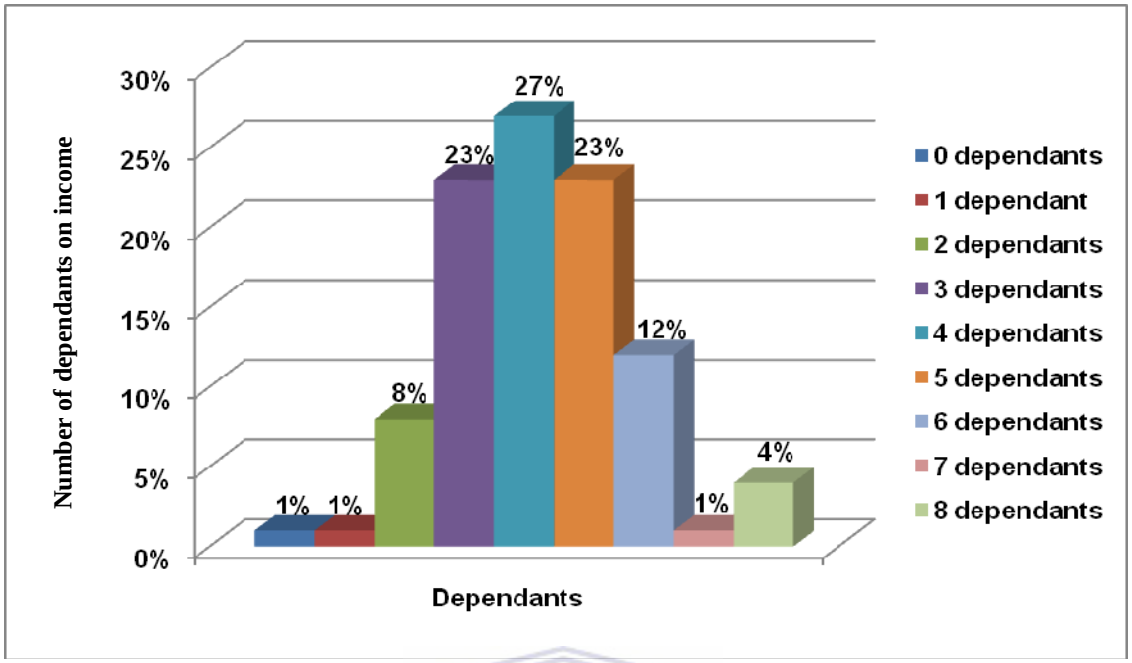

Figure 26: Percentage of dependants on participant mother's income

4.6.3 Paternal support

Paternal support for participant mothers was - 65 or 65% - compared to – 35 or 35% - who had no such support (Figure 27). Paternal support may be important as part of a mother's support system and financial status. Most mothers that do not earn the main income will need financial support, which may be provided by the father of the child.

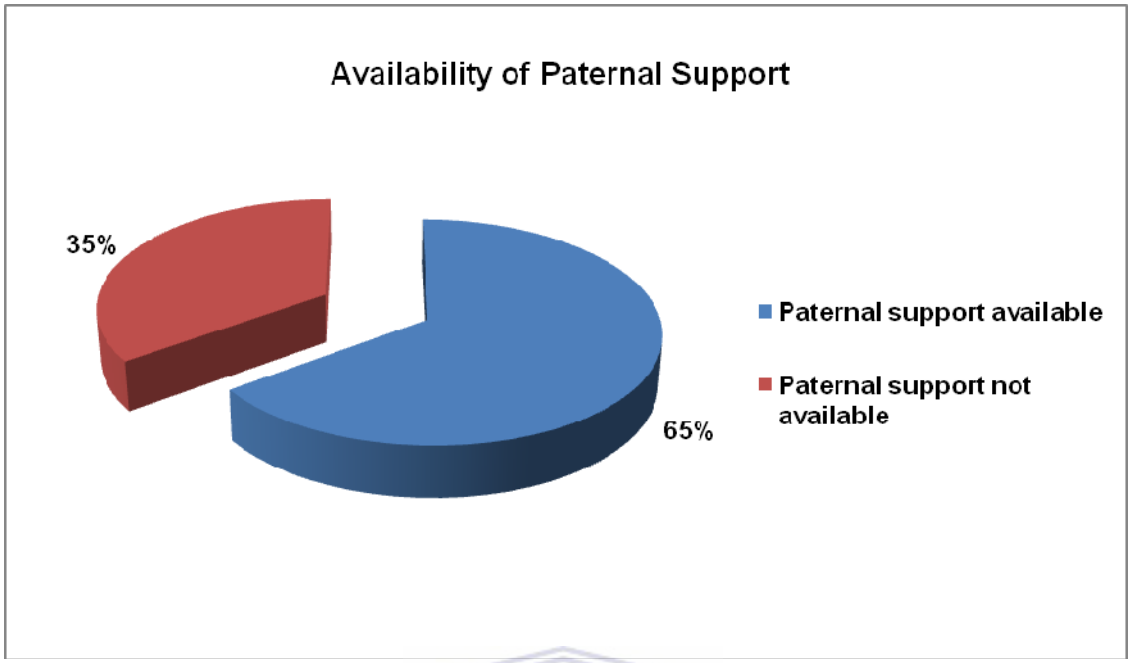

Figure 27: Availability of paternal support to participant mothers

4.6.4 Type of government grant

A greater proportion of participant mothers received a Child Support Grant (70 or 70%), one (1%) reported receiving a Care Dependency Grant, another one (1%) a grant type not listed and 28 (28%) received no grant (Figure 28). These all have financial implications on formula feeding as previously discussed.

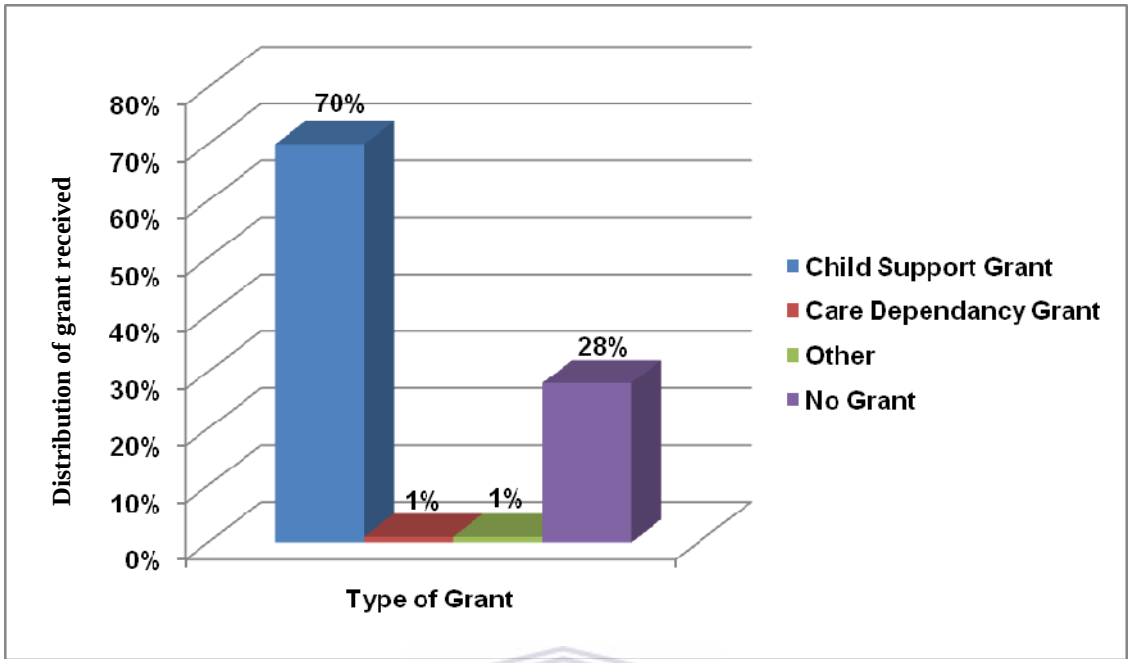

Figure 28: Types of Government Grants received by participant mothers

4.7 Cultural aspects

4.7.1 Language

The main language spoken in the Mdantsane area is Xhosa by 98 (98%) of participants, followed by Zulu with only two participants (2%) (Figure 29). No other major languages were reported. This has important implications for correct formula feeding methods, as mothers need to receive counselling on correct feeding and preparation methods in their own languages. In some clinics throughout South Africa, challenges arise regarding language of counselling. Counsellors sometimes do not speak a language understandable to the client (Doherty, Chopra & Colvin, 2006). However, at the clinic in question this is not a problem, as most personnel at the clinic is Xhosa speaking.

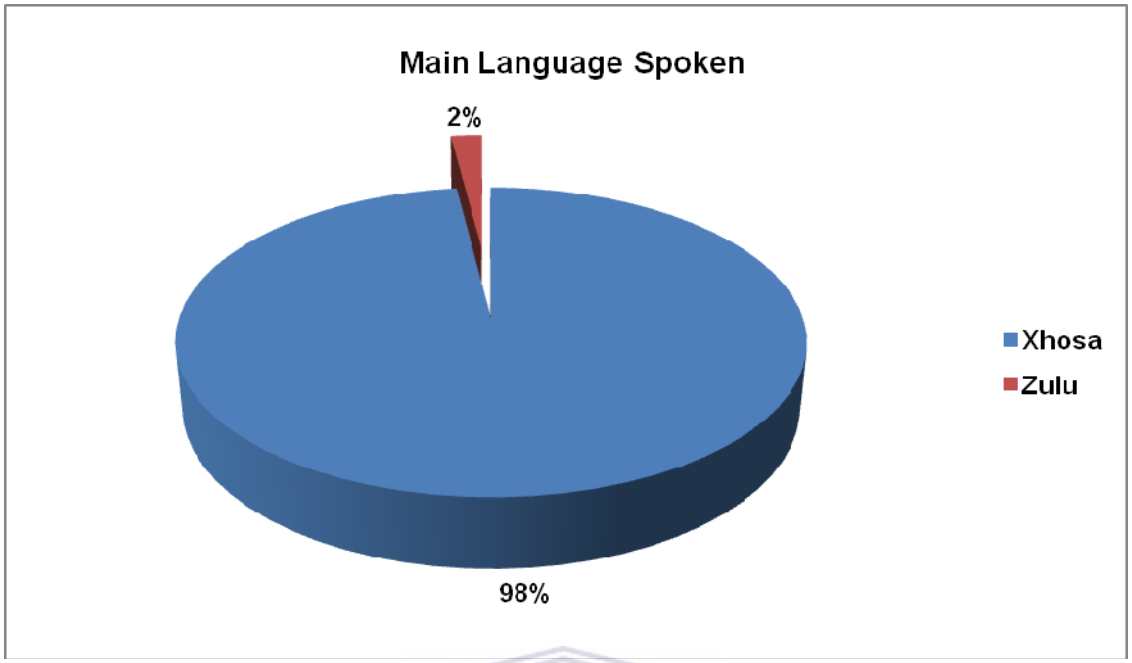

Figure 29: Main language spoken by participant mothers

4.7.2 Religion

The largest number of participant mothers reported being of the Christian faith. The Protestant denomination was the most common church (36 or 36%), followed by the Zion Church (33 or 33%) and the Catholic Church (19 or 19%). A further six participants (6%) reported being atheist while another six (6%) followed a religion not listed (Figure 30). It is well known that religion and culture play key roles in decision-making which may affect infant feeding choices. In some religions and cultures, especially in Africa, there is a stigma attached to formula feeding an infant. Many African cultures accept only exclusive breastfeeding as a feeding choice (Doherty, 2006; Leshabari, Blystad, & Moland, 2007).

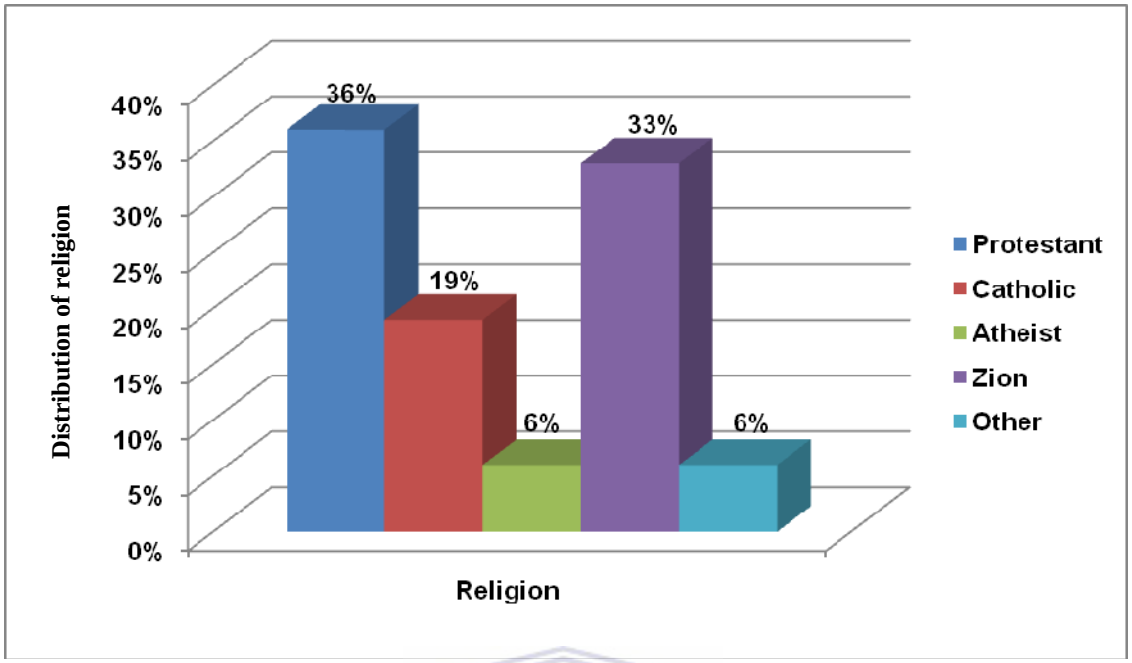

Figure 30: Religion followed by participant mothers

4.8 Specific concerns regarding feeding choice

4.8.1 Formula feeding (mixed and exclusive) and employment

It was found that of the 65 participants mothers that formula feed, only 26 (40%) were employed before the pregnancy and 39 (60%) were unemployed. This means that – 39 or 60% - of participants may not have had a stable financial support system (Figure 31). In previous sections implications of financial instability were discussed. As previously stated in this section 60% were unemployed, which might have impacted on their ability to have sufficient funds for buying formula milk as well as the utensils essential for this feeding method.

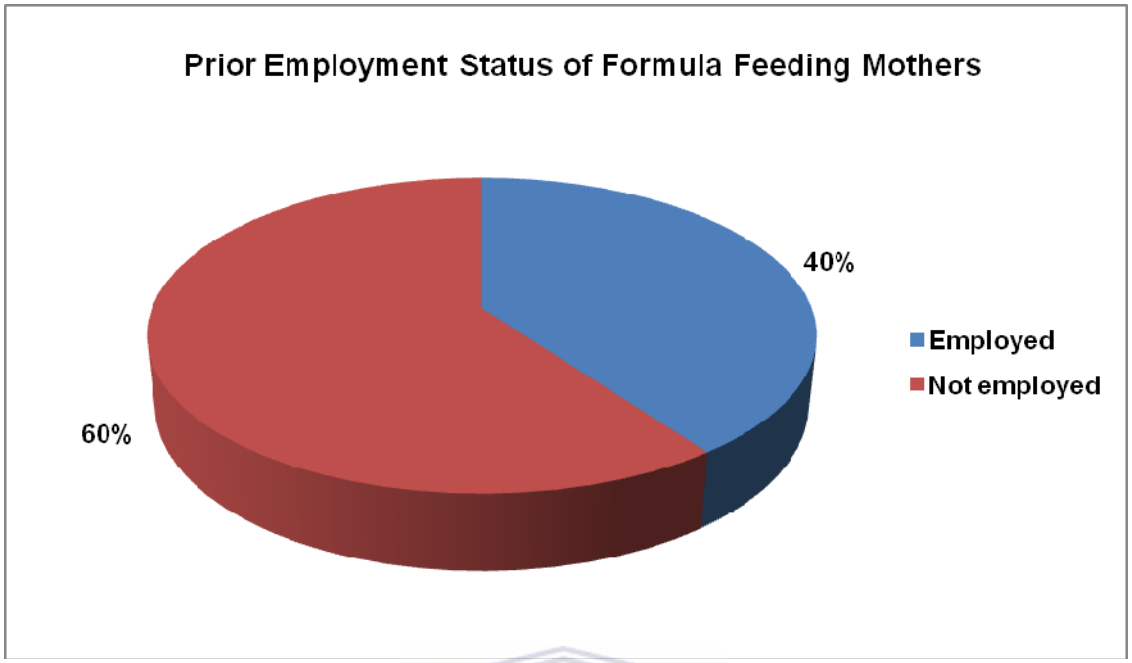

Figure 31: Prior employment status of formula feeding participant mothers

4.8.2 Level of education and infant feeding choice

In total 86 participant mothers attended Grade 10 – 12. Among the exclusive breastfeeding and exclusive formula feeding participant mothers, 34 (40%) of breastfeeding mothers and 44 (51%) of formula feeding mothers had attended Grades 10-12, leaving 8 (9%) mix feeding mothers to have attended Grades 10-12 (Figure 32). This indicates that the formula feeding group had the higher level of education. Research has suggested that women with a higher educational background tend to choose breastfeeding and also breastfeed for a longer period than women with a lower educational level (Van Rossem *et al.*, 2009).

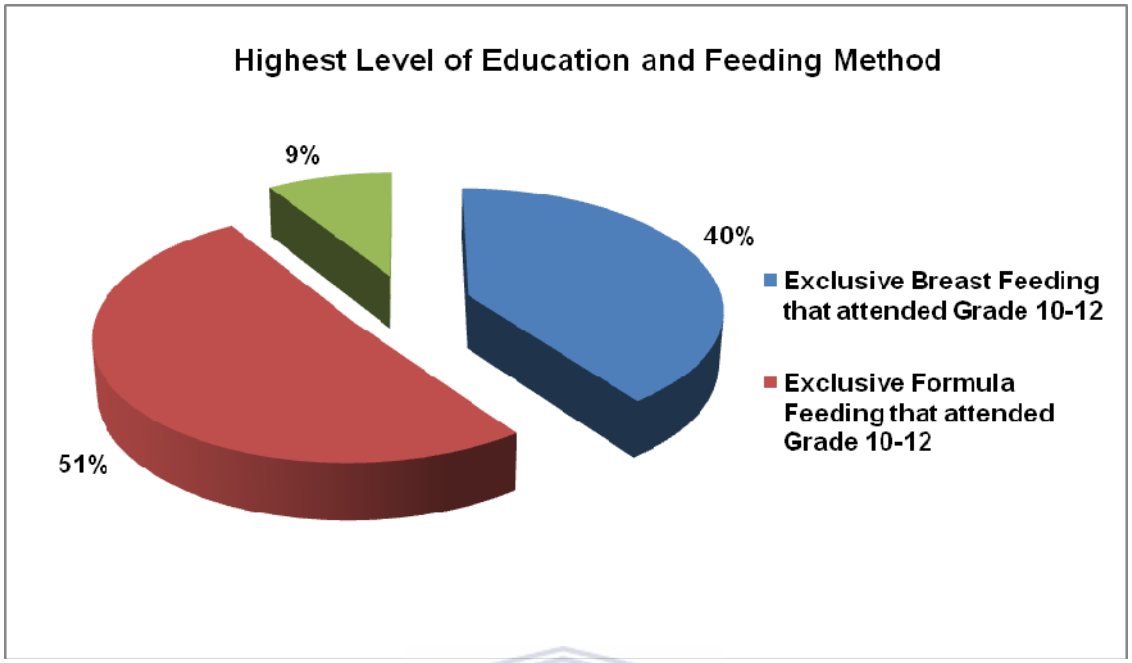

Figure 32: Level of education in exclusive breastfeeding, exclusive formula feeding and mix feeding participant mothers

4.8.3 Formula feeding (mixed and exclusive feeding) and safe water

It was found that only 42 participant mothers (64,7%) that formula feed (exclusive and mixed feed) had running tap water in their homes. This means that 23 participants (35,3%) used some other sources of water, which may have varied greatly in quality (Figure 33). This is alarming for the safety of the infant, if one considers research on infectious diseases caused by unsafe water (diarrhoea, cholera and thread worms) which pose high risks for morbidity or/and mortality (UNICEF & WHO, 2009).

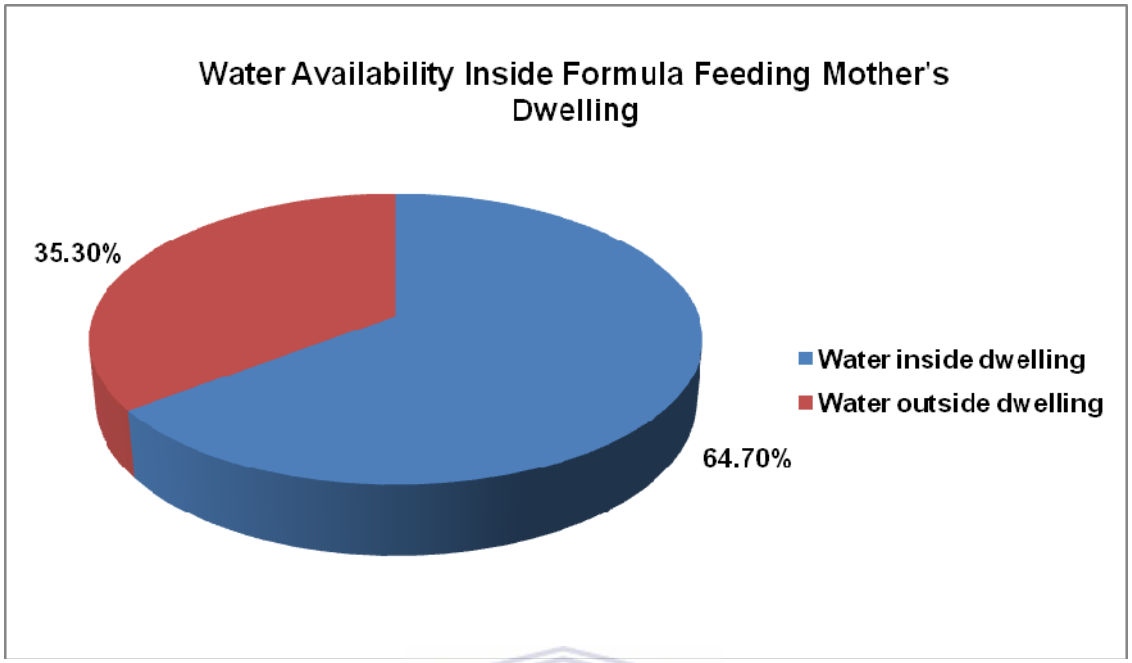

Figure 33: Water availability inside dwelling of formula feeding participant mothers

4.8.4 Formula feeding (mixed and exclusive) and availability of electricity

Electricity is the preferred source of energy in formula feeding mothers, because of the need to boil water before preparation. Using sources such as a fire or coal may cause delayed, unsafe and incorrect formula feeding practices. It was found that 45 (69%) of formula feeding (exclusive and mixed feed) participants had electricity to cook while 20 (31%) participants had no electricity (Figure 34). These 20 (31%) of formula feeding participants were thus in danger of causing an increased risk of infectious diseases in their infants (Bradshaw & Dorrington, 2006; UNICEF & WHO, 2009).

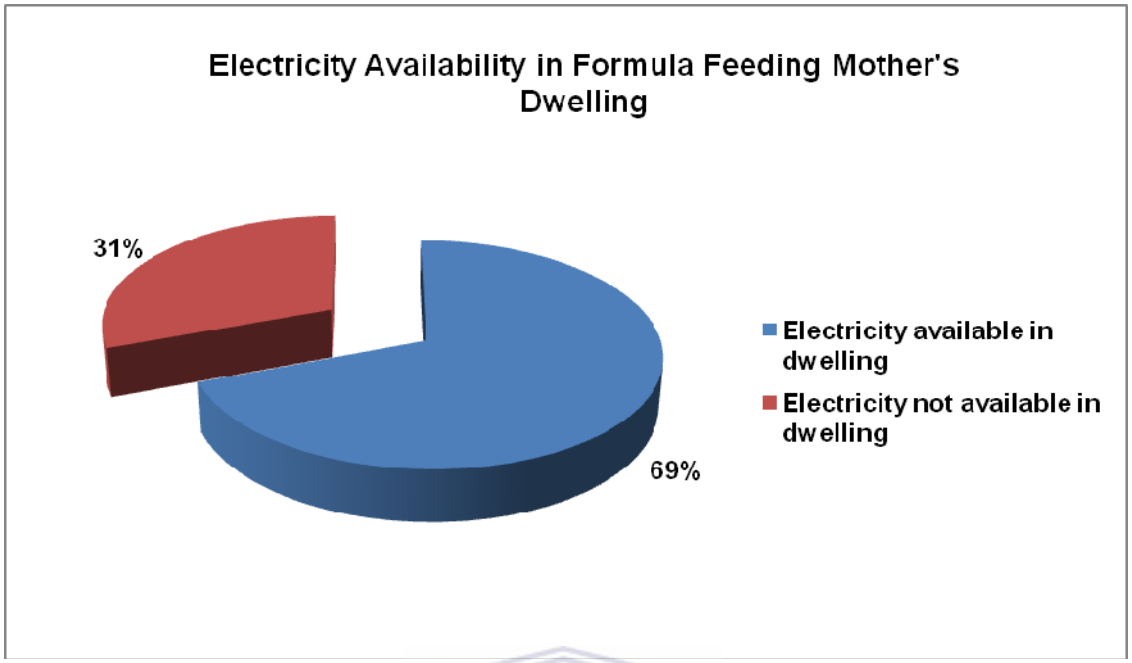

Figure 34: Availability of electricity in dwelling of formula feeding participant mothers

4.8.5 Formula feeding (mixed and exclusive) and type of building material

It was found that 35 (53,8%) of formula feeding (exclusive and mixed feed) mothers lived in a cement/concrete dwelling, 17 (26,2%) lived in an informal dwelling and 13 (20%) in a traditional dwelling (Figure 35). It is possible that smaller and more informal dwellings have very basic facilities and may have a higher rate of communicable diseases. This may impact infant feeding and in turn infant morbidity (Papathakis & Rollins, 2004).

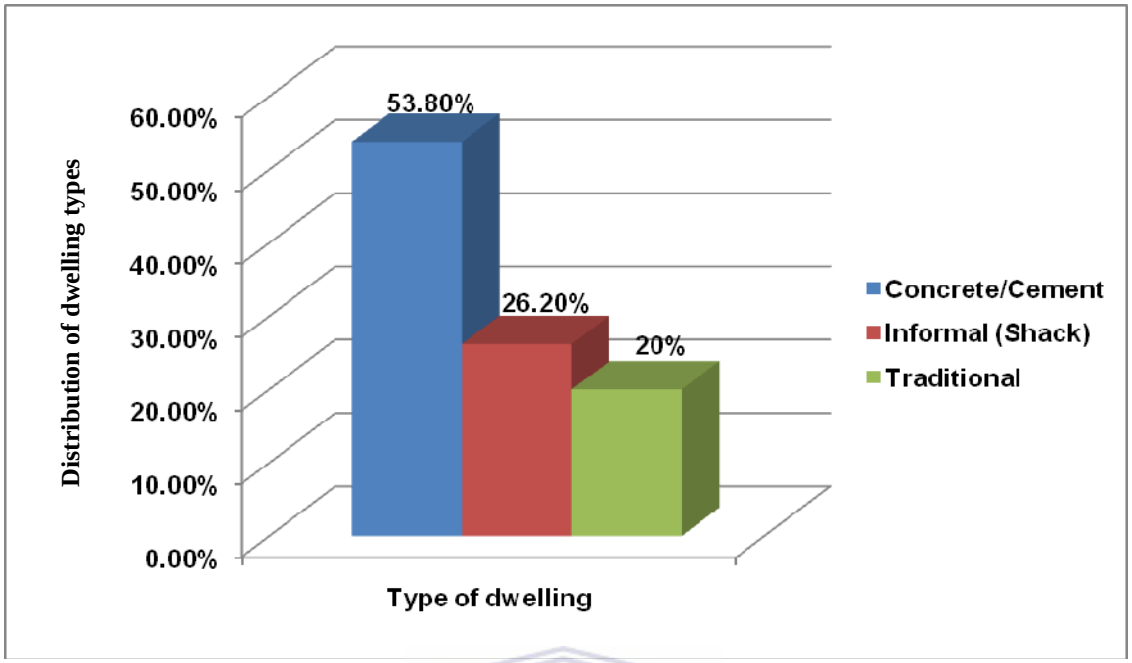

Figure 35: Formula feeding participant mothers and type of dwelling

CHAPTER 5
DISCUSSION OF RESULTS

5.1 Introduction

In this concluding chapter, I discuss the main findings of my study which aimed at describing the current socio-economic and demographic factors that may influence infant feeding practices among women with infants up to 14 weeks of age in the Amathola district. The research conducted focussed on achieving three objectives of which will be discussed. The chapter also makes a few recommendations for further studies. One hundred (N=100) participants were used; therefore percentages quoted align with number of participants.

5.2 Demographic factors that influence infant feeding

With regards to the objective to describe the demographic factors that may influence infant feeding practices among mothers, the survey provides information on mostly biographical data of which some assumptions were made.

The ages of the mothers varied between 14 and 41 years. The largest age group for the mothers was 29 - 30 years. Mothers of adolescent age (14 – 18 years) accounted for a small percentage. In terms of marital status, most mothers reported being single. Various studies have shown links between lower educational levels, poverty, single parenting and a lack of breastfeeding (Lizarraga, Maehr, Wingard and Felice, 2005; Dangal, 2005; Van Rossem, 2009). As previously discussed, a study by Arora, McJunkin, Wehrer & Kuhn, (2000) emphasized the fact that exclusive breastfeeding rates are significantly higher in married than single women. The average parity for the whole group was a low of 1.8 per person. Average parity for breast feeding and formula feeding was 2.06 and 1.66 respectively. Higher parity in women may cause more financial strain.

The above may all affect the social, emotional and health status of women, which influences infant feeding choices and practices.

The majority of study participants spoke Xhosa and the only other language reported was Zulu. The main religion for participants was the Christian faith. Recent studies have proven that cultural aspects and religion have an influence on infant feeding choice. Some cultures and religions only promote breastfeeding; others introduce solids early in life and thus promote mixed feeding (Doherty, 2006; Leshabari, Blystad, & Moland, 2007). As discussed in the literature review, mixed feeding has higher rates of infant mortality than exclusive breastfeeding.

Multiple modes of transport to a health facility were used by participants, which included walking, taking a taxi, using the bus, using a car and using some other form of transport. Most mothers walked to the clinic and/or took a taxi. Easy access is especially important for formula feeding mothers who need to receive formula from the government.

5.3 Socio-economic factors that influence infant feeding

The second objective involved the socio-economic factors that may influence infant feeding practices. The following discussion shows that this objective was met.

Education has been proven to have a positive influence on the initiation and sustaining of breastfeeding in mothers with higher educational levels (Sika-Bright, 2010). A large number of mothers reported having passed Grade 12. A small percentage of the mothers reported not having achieved any school grade. Educational level is important in making the correct choice of infant feeding.

The survey found that unemployment numbers remains high. Income is of great importance to formula feeding mothers who buy formula milk. Unfortunately, more than half of the mothers in my survey were not employed before falling pregnant. The type of

work carried out by the mothers also ranged greatly. Most employed mothers either worked as domestic workers or did some other job not listed on the questionnaire.

The study population had a range of ages. It was noted that teenage pregnancy remains a problem with 8% of the population being mothers of adolescent age. Such mothers may not have the necessary family support, educational knowledge and financial support necessary in order to provide sufficiently for their infants. In addition, teenagers with lower educational levels have a lower incidence of breastfeeding (Lizarraga, Maehr, Wingard and Felice, 2005; Sika-Bright, 2010).

The majority of study participants lived in a formal dwelling, followed by those who lived in a shack or informal dwelling. Fewer mothers said that they lived in a flat and hardly any said they lived in a room. There was a small difference between those who reported renting or owning a dwelling. Dwelling material ranged from mainly concrete/cement to informal, shack or traditional building material. One to eight people/dependants slept in a dwelling. The majority of mothers reported having four or five other people/dependants sleeping in their dwelling. The type of dwelling and number of dependants in a dwelling is of importance in maintaining the hygiene essential for infant feeding and for preventing infectious diseases (UNICEF & WHO, 2009).

A key finding was that just more than half of the participants had adequate facilities in their dwellings. A high number of study participants did not have a flush toilet inside their dwellings and some still had no working taps inside their dwelling. Not having access to a flush toilet or running water inside a dwelling is an indication of a lack of adequate sanitation, which increases the danger of the spread of communicable diseases. It is especially crucial for mothers to use safe water in preparing feeds in order to decrease the risk of disease (National Population Unit, 2000; UNICEF & WHO, 2009).

In the category of working household items, the favourite item was a cell phone, followed by a stove. A car and a landline telephone were the least available working items within

the group. The amount of working items in a dwelling may be an indication of stable finances available, which is essential for formula feeding.

The main source of power used by just more than half of the study participants was electricity. Still, the survey revealed a generally high number of study participants that did not have access to electricity. This is of concern should mothers opt for formula feeding. The problem arises when formula feeding mothers are less motivated to boil water for feeds should they not have a quick method such as an electric kettle. International guidelines highlight the necessity of using cooled down boiled water when making a formula feed to reduce the risk of infectious diseases.

The survey found that the main source of income for most study participants was from their partner or husband. The majority of study participants reported that four people were dependant on the main income that they received. The highest reported number of dependants on the main income was eight. Most study participants (65%) received paternal support. Support in the form of some type of government grant was a significant 72%, with 70% of all the mothers receiving a child support grant. Financial stability is needed to formula feed, while breastfeeding is more cost-effective (Papathakis & Rollins, 2004). Finances should be taken into consideration when formula feeding because of milk and equipment expenses.

5.4 Feeding choices

Current international guidelines (UNICEF & WHO, 2009) on infant feeding promote the use of exclusive breastfeeding by all HIV negative women in the first six months of an infant's life, this statement encouraged the aim completion to describe the occurrence of current infant feeding choices of mothers. Although HIV is excluded from this study, assumptions can still be made since regardless of HIV status some mothers still choose to formula feed infants.

A key finding is that the majority of mothers were exclusively formula feeding while the minority were exclusively breastfeeding. Mixed feeding was found to be practised by 22% of the mothers. Mixed feeding has been shown to have an increased risk of gastrointestinal and respiratory infections in infants, also a higher child death rate in children under the age of five (Bradshaw & Dorrington, 2006).

The survey provides evidence that in formula feeding participants, a large number of mothers reported the use of cooled down boiled water. Some still used cold water and boiling water. Despite UNICEF & WHO (2009) international guidelines almost half of the formula feeding participants still used incorrect methods to prepare the formula, such as storing milk in the fridge or letting it stand at room temperature until the next feed.

Furthermore, an assumption could be made between educational level and type of feeding adopted. Of the mothers who had completed Grade 12, most were formula feeding rather than breastfeeding mothers. In contrast to the study by Van Rossem *et al.* (2009), this survey suggested participants who formula feed had a slightly higher educational level.

5.5 Recommendations for further studies

Although most of the results of this survey suggest improvements in the socio-economic and feeding practices compared to previous studies, it has to be noted that this survey had a small population sample and covered just one clinic due to the wide scope of the research topic and limited resources. I would recommend that further research be done on the critical aspects or issues found in this study. A bigger sample can be obtained by using more clinics and by using trained fieldworkers. The research undertaken in this study may also be used as groundwork for other studies concerned with infant feeding choices and feeding practices, and the conditions under which they are practised. In combination with WHO guidelines the results may be used in the continuous efforts to improve the counselling of mothers regarding infant feeding choices and preparation based on their socio-economic conditions and health status.

5.6 Conclusion

This research study attempted to provide a description of the current demographic, socio-economic conditions and other infant feeding aspects of mothers with infants up to the age of 14 weeks, in the Nontyatyambo Clinic (NU 2), Amathola District. The study identified various difficulties experienced by some study participants which pose an enormous threat to infant health.

Despite recent improvements in this area relating to the factors discussed in this chapter, a few concerns were unearthed which are likely to impact on infant feeding. The main concerns identified involve: inadequate facilities, lack of essential resources, such as electricity and finances, inappropriate feeding choices based on socio-economic living conditions and inadequate formula feeding preparation methods, which in turn may lead to a variety of deadly infectious diseases in the infants and higher mortality rates.

REFERENCE LIST

Abrahams, K. (2006). *Making a case for child survival in South Africa's 'Age of Hope'*. Cape Town: Children's Institute, University of Cape Town.

Aday, L.A. (1996). *Designing and conducting health surveys: a comprehensive guide*. 2nd Edition. USA: Josey-Bass Publishers.

Ahsan, R., & Quamruzzaman, J.M. (n.d.). *Informal Housing and Approaches towards the Low-income Society in Developing Countries.* Retrieved April 23, 2010, from http://www.tasa.org.au/conferences/conferencepapers09/papers/Ahsan,%20Reazul.pdf

Amathola District Municipality. (2007). *Growth and Development Summit 2007. Socio-economic Profile.* Retrieved October 21, 2008, from http://www.amathole.gov.za/files/AmatholeGDC.pdf

Answers. (2010). *Biographical influences.* Retrieved April 23, 2010, from http://www.answers.com/topic/biographical

Arora, S., McJunkin, C., Wehrer, J., & Kuhn, P. (2000). *Major factors influencing breastfeeding rates: Mother's perception of father's attitudes and milk supply. Pediatrics, 106(5).* Retrieved February, 22, 2011 from http://www.pediatrics.org/cgi/content/full/106/5/e67

Ashman, R.L. (2005). *Infant Mortality and Financial Stability*. Retrieved August 19, 2010, from http://digitalcommons.pace.edu/cgi/viewcontent.cgi?article=1000&context=honors_college_class_research_papers

Bergstrom, E. (2003). *Bacterial Contamination and Nutrient Concentration*

of Infant Milk in South Africa: A Sub-study of the National PMTCT Cohort Study. Unpublished Masters Dissertation. University of Uppsala, Sweden.

Bradshaw, D., Bourne, D., & Nannan, N. (2003). What are the leading causes of death among South African children? MRC Policy Brief 3 of 2003. Cape Town: South African Medical Research Council.

Bradshaw, D., & Dorrington, R. (2006). Child mortality in South Africa – we have lost touch. *South African Medical Journal*, 95(3), 582-583.

Bradshaw, D., & Steyn, K. (2002) Poverty and Chronic Diseases in South Africa: Technical Report 2001. Retrieved February 22, 2011 from http://www.mrc.ac.za/bod/povertyfinal.pdf

Brink, H. (2000). *Fundamentals of research methodology for health care professionals*. Cape Town: Juta.

Business Trust. (2007). *Mdantsane Nodal Economic Development Profile: Eastern Cape*. Department of Provincial and Local Government. Republic of South Africa.

Burns, N & Grove, S.K. (1997; 2001). *The practice of nursing research: conduct, critique and utilization.* 3rd and 4th Edition. Philadelphia, Pa: Saunders

Cambridge Dictionaries Online. Socio-economic. Retrieved February 22, 2011, from http://dictionary.cambridge.org/dictionary/british/socioeconomic

Dangal, G.M.D. (2005). An update on Teenage Pregnancy. *The Internet Journal of Gynecology and Obstetrics*, 5(1). Retrieved April 22, 2010, from http://www.ispub.com/journal/the_internet_journal_of_gynecology_and_obstetrics/volume_5_number_1_16/article_printable/an_update_on_teenage_pregnancy.html

Department of Health. (2007). *Infant and Young Child Feeding Policy*. South Africa: Pretoria. Retrieved October 21, 2008, from www.doh.gov.za

Department of Health, Medical Research Council & Measure Demographic and Health Surveys. (2002). *South Africa Demographic and Health Survey 1998, Full Report.* Retrieved February 22, 2011, from http://www.doh.gov.za/facts/1998/sadhs98/

De Vos, A.S., Strydom, H., Fouche, C.B., & Delport, C.S.L. (2002). *Research at Grass Roots. For the social sciences and human service professions.* Second Edition. Pretoria: Van Schaik.

De Wagt, A., & Clark, D. (2004). *UNICEF's Support to Free Infant Formula for Infants of HIV Infected Mothers in Africa: A Review of UNICEF Experience.* Retrieved February 2, 2011, from http://www.global-breastfeeding.org/pdf/UNICEF.pdf

Doherty, T. (2006). *HIV and Infant Feeding. Operational Challenges of Achieving Safe Infant Feeding Practices*. Sweden: Uppsala University.

Doherty, T., Chopra, M., & Colvin, M. (2006*). Counselling on infant feeding choice: Some practical realities from South Africa.* Retrieved December 15, 2009, from http://fex.ennonline.net/29/counselling.aspx

Eastern Cape Development Corporation (n.d.). *Amatole District*. Retrieved February 19, 2007, from http://www.ecdc.co.za/districts/districts.asp?pageid=37

Environment Canada. (n.d.). *Water*. In Eastern Cape Government Profile. Retrieved October 7, 2008, from http://www.ec.gc.ca/water/en/info/gloss/e_gloss.htm

Forest Genetics Council. (2009). *Your genes, your choices: Exploring the Issues Raised by Genetic Research.* Retrieved October 7, 2010, from

http://ehrweb.aaas.org/ehr/books/glossary.html

Free Dictionary. (2009) *Bios*. Retrieved January 15, 2010, from http://www.thefreedictionary.com/bio-

Gartner, L.M., & Eidelman, A.I. (2005). Breastfeeding and the Use of Human Milk. Policy statement. *American Academy of Pediatrics*, 115(2), 496-506. Retrieved December 12, 2009 from http://aappolicy.aappublications.org/cgi/reprint/pediatrics;115/2/496.pdf

Green, R.K., & Hendershott, P.H. (2001). *Home Ownership and the Duration of Unemployment: A Test of the Oswald Hypothesis*. University of Aberdeen and National

Health Systems Trust. (n.d.) (a). *Death Rate*. Retrieved January 22, 2010, from http://www.hst.org.za/healthstats/4/data

Health Systems Trust. (n.d.) (b). *Teenage pregnancy*. Retrieved December 14, 2009, from http://www.hst.org.za/healthstats/2/

Health Systems Trust. (n.d.) (c). *Household.* Retrieved January 14, 2010, from http://www.hst.org.za/healthstats/177/

Health Systems Trust. (n.d.) (d). *Infant mortality rate.* Retrieved January 22, 2009, from http://www.hst.org.za/healthstats/7/data

Health Systems Trust. (2004). *South African Health Review 2003/04*. ISBN: 1-919839-35-6. Retrieved April 2, 2007, from http://www.hst.org.za/generic/29

Health Systems Trust. (2008). South African Health Review 2008. Retrieved February 22, 2011, from http://www.hst.org.za/uploads/files/sahr2008.pdf

Haupt,A & Kane, T.K. (2000). *Population Reference Bureau's Population Handbook. 4th International Ed*. Washington DC: Population Reference Bureau

Human Sciences Research Council. (2007). *Urban, Rural and Economic Development*. Retrieved September 17, 2010, from http://www.hsrc.ac.za/Document-2400.phtml

Hutchinson,P., Boerma, J.T., & Khan,M. (2004*). 1998 South Africa Demographic and Health Survey Report for Eastern Cape Province*.

Leshabari, S.C., Blystad, A., & Moland, K.M. (2007). Difficult choices: Infant feeding experiences of HIV-positive mothers in northern Tanzania. *Journal of Social Aspects of HIV/AIDS*, 4(1), 544-555. Retrieved April 23, 2010, from http://www.sahara.org.za/index2.php?option=com_docman&task=doc_view&gid=203&Itemid=85

Lizarraga, J.L., Maehr, J.C., Wingard, D.L. & Felice, M.E. (2005). Psychosocial and economic factors associated with infant feeding intentions of adolescent mothers. *Journal of Adolescent Health,* 13 (8), 676-681. Retrieved April 22, 2010, from http://www.sciencedirect.com/science

Maree, K. (2007). *First Steps In Research*. Pretoria: Van Schaik.

Mcann, M. (2005). Annexure 2: District Profile Eastern Cape Amathole District Municipality (DC12). Retrieved February 20, 2009, from http://www.thinasinako.co.za/files/documents/290806175552.pdf

Medical Research Council. (2002). Guidelines on ethics for medical research: General Principles. Retrieved April 9, 2007 from http://www.mrc.ac.za

Medical Research Council. (2002). Guidelines on Ethics for Medical Research: General Principles. Retrieved April 23, 2007, from http://www.mrc.ac.za/ethics/ethics.htm

Medicine Net. (n.d.). *Diarrhoea*. Retrieved December 12, 2010, from http://www.medterms.com/script/main/art.asp?articlekey=2985

Muijs, D. (2004). *Doing Quantitative Research in Education with SPSS.* UK: Sage Publications.

National Department of Health & Health Systems Trust (1996). *Health Care in the Eastern Cape: Implications for Planning 1996.* Retrieved February 28, 2007, from http://www.hst.org.za/uploads/files/ec.pdf

National Population Unit. (2001). *State of South Africa's Population Report 2000: October 2000*. Retrieved April 5, 2007, from www.info.gov.za/otherdocs/2000/population/cover.pdf

Norman R, Bradshaw D, Schneider M, Pieterse D & Groenewald P (2005). *Revised Burden of Disease Estimates for South Africa 2000*. Cape Town: South African Medical Research Council. Retrieved January 15, 2009 from http://www.mrc.ac.za/bod/reports.htm.

Oosthuizen, M. (2007). Estimating Poverty Lines for South Africa. Discussion Document. Retrieved February 22, 2010 from http://www.info.gov.za/view/DownloadFileAction?id=85513

Palamuleni, M., Kalule-Sabiti, I. & Makiwane, M. (2007). Fertility and childbearing in South Africa. In: Amoateng, A.Y. & Heaton, T.B. (eds) *Families and households in post-apartheid South Africa: socio-demographic perspectives.* Cape Town: HSRC Press.

Papathakis, P.C., & Rollins, N.C. (2004). Are WHO/UNAIDS/UNICEF-recommended replacement milks for infants of HIV-infected mothers appropriate in the South African context? *Bulletin of the World Health Organization,* 82 (3), 164-174. Retrieved December 15, 2009, from http://www.scielosp.org/pdf/bwho/v82n3/v82n3a05.pdf

Ross, J.S., & Labbok, M.D. (2004). Modelling the Effects of Different Infant Feeding Strategies on Infant Survival and Mother-to-Child Transmission of HIV. *American Journal of Public Health,* 94(7), 1174-1180. Retrieved April 2, 2007, from http://www.ajph.org/cgi/reprint/94/7/1174

Sika-Bright, S. (2010). *Socio-cultural factors influencing infant feeding practicies of mothers attending welfare clinic in Cape Coast*. Retrieved February 22, 2010, from http://www.ifra-nigeria.org/IMG/pdf/Sika.pdf

Statistics South Africa. (1998). Census in Brief. The people of South Africa population census 1996. Retrieved February 22, 2011, from http://www.statssa.gov.za/publications/statsdownload.asp?PPN=Census96&SCH=3116

Statistics South Africa (2001). *Education in South Africa, Selected findings from Census 1996.* ISBN: 0-621-31806-X. Pretoria: South Africa. Retrieved April 25, 2007 from www.statsonline.gov.za/publications/statsdownload.asp?ppn=EducationInSA&SCH=2294

Statistics South Africa. (2004). *Census 2001: Primary table South Africa Census 96' and 2001 compared. Pretoria: Statistics South Africa*. Retrieved April 23, 2007, from http://www.statssa.gov.za/census01/html/RSAPrimary.pdf

Statistics South Africa (2005). *General Household Survey 2004*. Retrieved April 2, 2007, from http://www.statssa.gov.za/Publications /P0318/P0318July2005.pdf

Statistics South Africa (2007). *Community Survey 2007*. Retrieved August 19, 2010 from http://www.statssa.gov.za/Publications/CS2007Basic/CS2007Basic.pdf

Statistics South Africa (2008). *General Household Survey 2007*. Retrieved, August 19, 2009, from http://www.statssa.gov.za/publications/P0318/P0318July2007.pdf

Statistics South Africa (2010). *Mid-year population estimates 2010. Statistical Release.* Retrieved February 22, 2011, from http://www.statssa.gov.za/publications/P0302/P03022010.pdf

United Nations Children's Fund & World Health Organization. (2009). *Diarrhoea: Why children are still dying and what can be done.* WHO library. Retrieved April 22, 2010, from http://www.WHO.UNICEF.htm

United Nations Children's Fund. (2010). *Negative population rate*. Retrieved May 8, 2010, from http://www.unicef.org/infobycountry/southafrica_statistics.html

Van Rensburg, H.C.J. (2004). *Health and Health Care in South Africa*. Pretoria: Van Schaik Publishers

Van Rossem, L**,** Oenema, A., Steegers., Moll, H.A., Jaddoe, V.W.V., Hofman, A., Mackenbach, J.P., & Raat, H. (2009). Are Starting and Continuing Breastfeeding Related to Educational Background? The Generation R Study. *Pediatrics,* 123(6), 1017-1027. Retrieved April 23, 2010, from

http://pediatrics.aappublications.org/cgi/content/abstract/123/6/e1017

Virtual Trials. (2010). *Epidemiology.* Retrieved August 27, 2010 from http://virtualtrials.com/dictionary.cfm?N=2

Wikipedia. (2010). *Sanitation*. Retrieved August 19, 2010 from http://en.wikipedia.org/wiki/Sanitation

Woods, D. (2008). *Child Health Care. A learning programme for professionals.* Retrieved June 16, 2009, from http://ebwhealthcare.com/pdf/ChildHealthCare_OnlineEdition.pdf

World Health Organisation. (2000). *New data on the prevention of mother-to-child-transmission of HIV and their policy implications: conclusions and recommendations*. Geneva, Switzerland: UNAIDS; January 15, 2001. Retrieved February 19, 2007, from http://www.unaids.org

WHO/UNICEF/UNFPA/UNIAIDS (2003). *HIV and Infant Feeding: A Guide for Health Care Managers and Supervisors*. Geneva, Switzerland: World Health Organization; 2003. Retrieved February 21, 2007, from http://www.who.int/child-adolescent-health/publications/ NUTRITION/ISBN_92_4_159122_6.htm

APPENDIX 1: INFORMED CONSENT

A descriptive study of demographic and socio-economic factors influencing infant feeding practices in the Amathola district, South Africa

Informed consent form and statement

(To be explained by the researcher or field worker)

Dear Ms.…….

Explanation and purpose of the research.

There are many factors that affect infant feeding practices. Some of these are demographical data (access to health services; fresh water; safe sanitation and electricity), and others socio-economical data (unemployment; education; income; type of household and members in the household).

I am currently doing a survey (study) on women (women who had babies recently) in the Amathola district to find out what is the current demographic and socio-economic status of these mothers as well as the choice of infant feeding they use. This survey information will be used for my Master's Mini-Thesis project at the University of The Western Cape.

To obtain this information I hereby ask your permission to give us a few minutes of your time to answer a few questions. It should not take longer than 15 minutes. We also would like to record some information from your baby's "Road to Health" card such as gender and birth date.

Procedure and duration

The study will include 100 participants which will be mothers with live infants up to the age of 14 weeks (± 2 weeks) at this clinic. The procedure will include one

questionnaire/data collection sheet conducted by the researcher or trained fieldworker. The researcher/fieldworker will ask questions and the answers will be written down on the data collect sheet. In addition will we take some notes from the baby's "Road to Health card".

Possible Risks

The research will not cause any physical harm to you or your baby's health. The questions are voluntary and you do not need to answer them if you do not feel so.

Possible Benefits

Although the research will not directly benefit you at this point, your participation may be of benefit to the community in the future.

Participation and subject rights

Your participation will be entirely voluntary and you will not be coerced (forced) in any way to participate. You are free to decide not to participate either now or any time during the research and this will not affect your current or future treatment in any way. You are thus entitled to withdraw at any time without penalty and with fair treatment throughout the research process. You or your representative will be informed in the case there should be any changes to the study which might influence you as participant and you will have the right to withdraw your participation if you should wish to. You will be treated with respect taking in consideration your culture. You must be legally and capable of consenting to this research.

All the information that we ask you or obtained from you or the "Road to Health" card will be kept strictly confidential. This mean that we will not share the information with other people as an individual but we will only use it in a scientific way for research purposes and to inform the local district about the current situation. The researcher will review records to ensure that ethical guidelines and protocol conditions have been met.

By signing informed consent you agree that you understand that you're participating in a survey (research study) and that you fully understand what the study is all about. You

also agree that the information gained may be used for research purposes. You are aware that you will receive no reimbursement (no payment to participate) in the study.

You are not obligated to sign the consent now; you may take your time to consider participation.

Ethical clearance

This survey has been approved by the Senate of higher degrees, the Academic Institute at the University of Western Cape and the Ethics Committee at the East London Hospital Complex.

Additional information

If at any time you need to ask questions regarding the research please do not hesitate to contact the researcher or supervisor at the above contact details.

If you have any additional questions regarding your rights as a research subject you may contact a member of the ethics committee at the Medical Research Council of South Africa on 021-9380911.

A descriptive study of demographic and
socio-economic factors influencing infant feeding practices in the
Amathola district, South Africa

Consent statement.

I the undersigned have read the foregoing information or it has been read to me. I have had the opportunity to ask questions which have been answered to my satisfaction. I understand what is expected of me during the procedure. I hereby consent to participate voluntarily in this study.

Name……

Signature……
Date…….

Witness name…..……

Signature…….....
Date.....

If illiterate: The content has been explained to me by the researcher or dedicated field worker and additional explanation given to me in understandable language by another person other than the researcher. I understand the requirement of the procedure.

Signature/thumbprint……. Date……

Witness 1…… Witness 2……

Signature of person who explained the content in understandable language or the legal representative.

Language…… Date……..…
Witness 1……. Witness 2……..

Uvavanyo lwempembelelo yemiba yezokusingqongileyo neyezoqoqosho ekondliweni kweemveku kwingingqi yaseMdantsane, kwiSithili saseAmathola, eMzantsi Afrika.

Ifomu yesivumelwano nengxelo

(Ekufuneka sicaciswe ngumphandi okanye umncedisi kuphando)

Nks obekekileyo.…….

Ingcaciso nenjongo yophando.

Mininzi imiba echaphazela izenzo zokondliwa kwabantwana. Olunye lolu lwazi lumayela neemeko ezisingqongileyo (ukufikelela kwiinkonzo zezonyango, amanzi acocekileyo nasempilweni, iinkonzo ezikhuselekileyo zokuhanjiswa kwelindle kunye nombane), kunye nolunye ulwazi ngokuphathelene neemeko zezentlalo noqoqoqsho (intswela-ngqesho, imfundo; imivuzo; ubume bekhaya kunye namalungu osapho kweloo khaya).

Ndenza uphando malunga nabasetyhini (oomama abasandul' ukufumana abantwana) kwiSithili saseAmathola, ukukhangela ubume bezentlalo noqoqosho baba mama, kunye nendlela yokondliwa kweentsana abayikhethayo nabayisebenzisayo. Ulwazi lolu phando luza kusetyenziselwa iprojekthi yam yeMini-Thesis yesidanga seeMasters kwiYunivesithi yeleNtshona Koloni.

Ukuze ndifumane olu lwazi, ndicela imizuzwana nje embalwa kwixesha lakho, ukuze uphendule imibuzo embalwa. Akuyi kuthabatha ngaphezulu kwemizuzu eli-15. Singathanda nokuba sishicilele olunye ulwazi olukwikhadi lomntwana wakho le-"Road to Health", olufana nesini sakhe nomhla wokuzalwa.

Inkqubo nexesha

Olu phando luza kubandakanya abathathi-nxaxheba abali-100, abaza kuba ngoomama abahlala nabantwana abaneentsuku ukuya kuma kwi-14 (malunga neeveki ezimbini) kule kliniki. Inkqubo iza kubandakanya iphepha elinye lemibuzo/iphepha lokuqokelelwa kolwazi eliya kukhutshwa ngumphandi okanye lowo ancedisana kunye naye. Umphandi/lowo ancedisana naye uza kubuza imibuzo, ze iimpendulo zibhalwe phantsi

kwiphepha lokuqokelela ulwazi. Ukongeza, siza kuthi sithabathe namanqaku kwikhadi lomntwana le-“Road to Health”.

Ubungozi obunokubakho

Olu phando aluyi kubangela nabuphi na ubungozi ngokwasemzembeni kwimpilo yakho neyosana lwakho. Imibuzo iphendulwa ngokuzithandela, yaye awunyanzelekanga ukuba uyiphendule ukuba uziva ungafuni ukwenza oko.

Iinzuzo ezinokubakho

Nangona olu phando lungayi kuzuzisa wena ngqo okweli thuba, inxaxheba yakho isenokuzuzisa uluntu kwixa elizayo.

Ukuthabatha inxaxheba kunye namalungelo omthathi-nxaxheba

Ukuthabatha kwakho inxaxheba kuya kuba kukuzikhethela ngokupheleleyo, yaye awuyi kunyanzelwa nangayipni na indlela ukuba uthabathe inxaxheba. Ungakhetha ukuba ungathabathi nxaxheba ngoku okanye nangaliphi na ixesha ngethuba lolu phando, yaye oku akuyi kuchaphazela impatho yakho ngoku okanye kwixa elizayo ngayo nayiphi na indlela. Ngoko ke, unelungelo lokurhoxa ngalo naliphi na ixesha ngaphandle kokohlwaywa, yaye uya kufumana impatho enobulungisa kulo lonke olu phanodo. Wena okanye lowo ukumeleyo niya kuthi naziswe xa kuthe kwabakho utshintsho kuphando, olunokuthi lukuchaphazele njengomthathi-nxaxheba, yaye uya kuba nalo ilungelo lokurhoxisa intatho-nxaxheba yakho ukuba uthe wanqwenela ukwenza njalo. Uya kuphathwa ngentlonipho ngokubhekiselele kwinkcubeko yakho. Kufuneka ube ukulungele ngokomthetho, yaye unakho ukunika imvume yokuthabatha inxaxheba kolu phando.

Lonke ulwazi oza kulubuzwa okanye oluza kufunyanwa kuwe, okanye ikhadi le-“Road to Health” luya kugcinwa luyimfihlelo kangangoko. Oku kuthetha ukuba asiyi kwabelana naye nabani na ngalo, koko siya kuthi silusebenzisele kuphela iinjongo zophando, ngendlela enobunzululwazi, nokwazisa isithili esi malunga nemeko ekhoyo. Umphandi uya kuthi ahlole ngokutsha ulwazi olushicilelweyo, ukuqinisekisa ukuba izikhokhelo ezisemthethweni kunye nemiqathango yeendlela zokuziphatha zilandelwe.

Ngokusayina kwakho esi sivumelwano, uyavuma ukuba uyaqonda ukuba uthabatha inxaxheba kuphando, yaye ukuqonda ngokupheleleyo okuqulathwe lolu phando. Ukwavuma nokuba ulwazi oluzuziweyo lungasetyenziselwa iinjongo zophando. Unolwazi lokuba awuyi kufumana mbuyekezo (akukho ntlawulo yakuthabatha inxaxheba) kolu phando.

Awubophelelekanga ukuba usisayine ngoku esi sivumelwano; ungathabatha ixesha lakho ukuba ucinge malunga nokuthabatha inxaxheba kulo.

Ukuphunyezwa ngokusemthethweni

Olu phando luphunyeziwe yi-Senate yezidanga eziphezulu, ye-Academic Institute kwiYunivesithi yeleNtshona Koloni, nayi-Ethics Committee kwiSakhiwo sesiBhedlele saseMonti.

Ulwazi olongezelelweyo

Ukuba uthe nangaliphi ixesha wanqwenela ukubuza imibuzo ngokuphathelene nolu phando, nceda ungathandabuzi, uqhagamshelane nomphandi buqu, okanye umncedisi wakhe kwezi nombolo zoqhagamshelwano zingentla.

Ukuba unemibuzo engaphezulu ngokuphathelene namalungelo akho njengomthathi-nxaxheba, ungaqhagamshelana nelungu leKomoti yeMithetho yokuziphatha, kwiBhunga loPhando lwezoNyango lweloMzantsi Afrika kule nombolo yomnxeba: 021-9380911.

Uvavanyo lwempembelelo yemiba yezokusingqongileyo neyezoqoqosho ekondliweni kweemveku kwingingqi yaseMdantsane, kwiSithili saseAmathola, eMzantsi Afrika.

Ingxelo yemvume.

Mna, osayine apha ngezantsi, ndilufundile ulwazi olunikeziweyo okanye ndilufundelwe. Ndibe nalo ithuba lokubuza imibuzo ethe yaphendulwa ngokundanelisileyo. Ndiyakuqonda okulindleke kum ngethuba lale nkqubo. Ndiyavuma ukuthabatha inxaxheba ngokuzikhethela kolu phando.

Igama:….…….

Usayino:.…… Umhla:…….

Igama lengqina…….....……. Usayino……..

Ukuba awufundanga: Umxholo ndiwucaciselwe ngumphandi okanye umncedisi ozinikeleyo kolu phando, ndaze ndanikwa nengcaciso engaphezulu ngolwimi endiluqondayo ngomnye umntu ongenguye umphandi. Ndiyaziqonda iimfuneko zale nkqubo.

Usayino/Ubhontsi……. Umhla……

Ingqina 1….…… Ingqina 2……

Usayino lomntu okucacisele umxholo ngolwimi oluqondayo okanye ummeli osemthethweni.

Ulwimi:…..…… Umhla……..….

Ingqina 1:……. Ingqina 2……..

APPENDIX 3: DATA COLLECTION INSTRUMENT

Questionnaire

Study name:	A descriptive study of demographic and socio-economic factors influencing infant feeding practices in the Amathola district, South Africa
Date of informed consent discussion:	...../03/2009
Name of study staff person completing informed consent discussion (and this coversheet):	
Is the potential volunteer literate?	☐ Yes ☐ No. If no, an impartial witness should be present during the entire informed consent discussion.
Did another family member or legally acceptable representative undergo the informed consent discussion and sign the consent form?	☐ Yes Specify relationship to participant _____ ☐ Not available ☐ Not applicable [Refer to site specific informed consent SOP for when this is relevant/required]
Was a copy of the informed consent form given to the participant?	☐ Yes ☐ No, refused to accept

Notes/Comments (not documented elsewhere):

01 Clinic name

……..

02 Today's date ☐☐☐☐☐☐

03 Researcher's initials ☐☐☐

04 Birth date recorded ☐☐☐☐☐☐

05 Is it a boy or a girl? ☐☐

01 Boy

02 Girl

06 Where did you give birth? ☐☐

01 Frere

02 Cecelia

03 Empilwene

04 Nu2

05 In the ambulance

06 At home

07 Other

07 What do you feed your baby?☐☐

01 Breastmilk

02 Formula milk

03 Warm tap water

04 Other

08 Have you ever breastfed your child? ☐☐

09 What type of water do you use when making the formula? ☐☐

01 Cooled down boiled water

02 Cold water

03 Boiled hot water

04 Not applicable

10 Do you receive formula from the government? ☐☐

01 yes

02 no

11 If milk is left after a feed in the bottle or cup, what do you do with this milk? ☐☐

01 Discard

02 Store in fridge

03 Store at room temperature

04 Other

12 What is your birth date? ☐☐☐☐☐☐

13 What is the highest school grade you achieved? ☐☐

14 Were you employed before the pregnancy? ☐☐

16 What is your marital status? ☐☐

01 Married
02 Single (Never married)
03 Co-habituate
04 Divorce
05 Widow
06 Other

17 How many children have you given birth to? ☐☐

18 What type of dwelling do you live in? ☐☐

01 House
02 Flat
03 Room
04 Informal house (shack)
05 Other

19 Do you own or rent the dwelling you live in? ☐☐

01 Own
02 Rent

20. What is the dwelling made of? ☐☐

01 Concrete / cement
02 Informal (shack)

22 Do you have a flush toilet? ☐☐

01 Yes
02 No

23 Do you have a running tap in the house? ☐☐

01 Yes
02 No

24 Do you have any of the following working items in the house?

01 Refrigerator 01 Yes 02 No ☐☐
02 Radio 01 Yes 02 No ☐☐
03 TV 01 Yes 02 No ☐☐
04 Telephone 01 Yes 02 No ☐☐
05 Cell phone 01 Yes 02 No ☐☐
06 Car 01 Yes 02 No ☐☐
07 Microwave 01 Yes 02 No ☐☐
08 Cooking Stove 01 Yes 02 No ☐☐

25 What is the main fuel used for cooking in your household? ☐☐

01 Wood
02 Charcoal
03 Paraffin/kerosene
04 Gas
05 Electricity
06 Others …….

26 Do you have electricity in the house? ☐☐

01 Yes
02 No

27 What method of transport do you use to get to your nearest clinic?

01 Walk	01 Yes	02 No	☐☐
02 Taxi	01 Yes	02 No	☐☐
03 Bus	01 Yes	02 No	☐☐
04 Train	01 Yes	02 No	☐☐
05 Own car	01 Yes	02 No	☐☐
06 Other	01 Yes	02 No	☐☐

28 Who provides the main source of income in the house? ☐☐

01 You
02 Husband / partner
03 Grandparent
04 Sibling
05 Other

29 How many people are dependent on the above's income? ☐☐

30 Does the father of the child contribute with child support? ☐☐

31 Do you receive a social grant? ☐☐

01 Yes
02 No

32 If yes, what type of grant do you receive? ☐☐

01 Child support grant
02 A foster Child Grant
03 A Disability
04 An old age grant
05 A care dependency grant
06 Other

33 What is your home language? ☐☐

01 Xhosa
02 English
03 Afrikaans
04 Zulu
05 Other

34 What religion are you? ☐☐

01 Protestant
02 Judaism
03 Muslim
04 Catholic
05 Hindu